NEWBORN HEARING SCREENING ALGORITHM
MAINE MEDICAL CENTER

INFANT IS ADMITTED TO UNIT

Secretary enters data into shared drive
(if not already present)

High Risk Factor(s) Reviewed

1st Screening of Newborn
(infant must be at least 12 hours of age)

RESULT

RESULTS: PASS with Risk Factors

Appointment NOT required prior to infant discharge.
Screener and NUS/Designee to follow process outlined in the Newborn Screening Algorithm for the Referral Process guidelines

RESULTS: REFER Unilaterally or Bilaterally

2nd Screening of Newborn
(needs to be done at least 6 Hours after 1st Screening)

RESULT

RESULTS: PASS with Risk Factors

RESULTS: REFER Unilaterally or Bilaterally

Category A Facility Appointment Required PRIOR to infant’s discharge. See Newborn Screening Algorithm for the Referral Process Guidelines

RESULTS: PASS without Risk Factors

No referral or follow-up appointment needed

Effective 11-2015
Newborn Hearing Screen Algorithm for the Referral & Appointment Process

Newborn Hearing Screen Results

**REFER Unilaterally or Bilaterally**

**Newborn Hearing Screen Referral Form** to be filled out by Screener (Appendix B):
- Print an extra results Label from the Natus Hearing Screen Machine and place on front of Referral Form
- Child’s Information Section (incl. Risk Factors & Level 1A, 1B or Level 2 follow up)
- Parent/Guardian Contact Info Section
- Alternate Contact (Friend/Relative) Section
- Follow-Up Information Section — Fill in the PCP Name, Phone and Fax #
- Have parents check off the Category A Audiology Facility they would prefer to have their follow-up appointment with
- Deliver Referral Form to NUS/Designee to call and make the follow-up appointment

**Follow-up Appointment Made** by the NUS/Designee
- Call selected facility and make follow-up appointment. Newborn is required to have follow-up appointment by 30 days of life
- Fill out the ‘Follow-up Information’ Section on the Referral Form with the Location and Date/Time of Appointment
- Give Parents a scanned copy of the Referral Form
- Fax the Referral Form (Both Sides) to the following places:
  - Selected Audiology Facility (Category A)
  - Maine Newborn Hearing Program (MNHP)
  - Infant’s Primary Care Provider (PCP)
- Enter the Follow-up appointment information in EPIC (Discharge Navigator, Follow up appointment section)
- Provide a copy of the completed Referral Form to:
  - Parents of Infant
  - Infant’s Chart (ORIGINAL COPY)
- Communicate to the Screener and the Infant’s Nurse that the Follow-up appointment has been made and a copy of the Referral Form has been given to parents.

**PASS with Risk Factors**

**Newborn Hearing Screen Referral Form** to be filled out by Screener (Appendix B):
- Print an extra result Label from the Natus Hearing Screen Machine and place on front of Referral Form
- Child’s information Section (include Risk Factors & Level 1A, 1B or Level 2 and recommended follow up timeframe, i.e. 3, 6, or 12 Months per Risk Factor level)
- Parent/Guardian Contact Info Section
- Alternate Contact (Friend/Relative) Section
- Follow-Up Information Section — Fill in the PCP Name, Phone and Fax #
- Write the following in the ‘Audiologic Diagnostic Evaluation’ section: “PARENTS TO MAKE APPOINTMENT”
- Provide Parents with the list of Risk Factors for hearing loss, and provide education on why their newborn needs continued follow-up (see Appendix A).
- Provide Parents with the full list of Category A and B Audiology Facilities & Contact Information (see Appendix C & D)

**NUS/Designee to:**
- Fax completed Referral Form to:
  - Maine Newborn Hearing Program (MNHP)
  - Infant’s Primary Care Provider (PCP)
  - Provide a copy of the completed Referral Form to:
    - Parents of Infant
    - Infant’s Chart (ORIGINAL COPY)
- Communicate to the Screener and the Infant’s Nurse that the Referral Form has been faxed to all appropriate places and the parents have received a scanned copy of the Referral Form.
Appendix A

Risk Indicators for Hearing Loss

RISK INDICATORS ASSOCIATED WITH PERMANENT CONGENITAL, DELAYED-ONSET, OR PROGRESSIVE HEARING LOSS IN CHILDHOOD

Risk indicators that are marked with an asterisk * are of greater concern for delayed-onset hearing loss.

- Caregiver concern regarding hearing, speech, language, or developmental delay*
- Family history* of permanent childhood hearing loss
- Neonatal intensive care of more than (≥) 5 days; or, any of the following regardless of length of stay:
  - ECMO*, assisted ventilation greater than or equal to (≥) 5 days*, exposure to ototoxic medications (gentamycin and tobramycin), loop diuretics (furosemide/Lasix), or chemotherapy, and hyperbilirubinemia that requires exchange transfusion
- In utero infections, such as CMV*, herpes, rubella, syphilis, and toxoplasmosis
- Craniofacial anomalies, including those that involve the pinna, ear canal, ear tags, ear pits, and temporal bone anomalies
- Physical findings, such as white forelock, that are associated with a syndrome known to include a sensorineural or permanent conductive hearing loss
- Syndromes associated with hearing loss or progressive or late-onset hearing loss*, such as neurofibromatosis, osteopetrosis, and Usher syndrome; other frequently identified syndromes include Waardenburg, Alport, Pendred, and Jervell and Lange-Nielsen
- Neurodegenerative disorders*, such as Hunter syndrome, or sensory motor neuropathies, such as Friedreich ataxia and Charcot-Marie-Tooth syndrome
- Culture-positive postnatal infections associated with sensorineural hearing loss, including confirmed bacterial and viral (especially herpes viruses and varicella) meningitis*
- Head trauma, especially basal skull/temporal bone fracture* that requires hospitalization
- Chemotherapy
- Severe birth asphyxia
- Hyperbilirubinemia without transfusion (at risk for Auditory Neuropathy Spectrum Disorder)

References
# Monitoring Infants with Risk Factors for Hearing Loss

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<thead>
<tr>
<th>Level 1A Risk Factors</th>
<th>Level 1B Risk Factors</th>
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<tbody>
<tr>
<td>Family history of permanent childhood hearing loss</td>
<td>Syndromes associated with progressive hearing loss (Neurofibromatosis, Osteopetrosis, Usher syndrome, Waardenburg Syndrome, Pendred Syndrome, Alport Syndrome, Lange-Neilson Syndrome)</td>
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<tr>
<td>In-utero infections (CMV, herpes, rubella, toxoplasmosis, syphilis)</td>
<td>Neurodegenerative disorders or sensory motor neuropathies (Huntington Syndrome, Friedreich ataxia, Charcot-Marie-Tooth Syndrome)</td>
</tr>
<tr>
<td>Culture positive postnatal infection (bacterial meningitis, sepsis)</td>
<td>Head Trauma, especially of the basal skull and temporal bone fractures</td>
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<tr>
<td>Craniofacial or temporal bone anomalies (deaf lip palate, atresia, ear tag/pits)</td>
<td>Very low Birth Weight (&lt;1500 g)</td>
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<tr>
<td>Severe birth asphyxia</td>
<td>Respiratory Distress</td>
</tr>
<tr>
<td>Mechanical ventilation</td>
<td>Bronchiopulmonary dysplasia</td>
</tr>
<tr>
<td>Hyperbilirubinemia with transfusion</td>
<td>Multiple risk factors from any level</td>
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<tr>
<td>Multiple risk factors from any level</td>
<td>ECMO</td>
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<tr>
<td>Chemotherapy</td>
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<th>Level 2 Risk Factors</th>
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<td>Otopotoxic medication exposure (any amount) with no other risk factors</td>
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<tr>
<td>Low birth weight (1500-2500 g) with no other risk factors</td>
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<tr>
<td>Prematurity (&lt;37 weeks) with no other risk factors</td>
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<tr>
<td>NICU stay greater than 5 days</td>
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</tr>
<tr>
<td>Hyperbilirubinemia without transfusion (at risk for Auditory Neuropathy Spectrum Disorder)</td>
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</table>

*Caregiver concern for hearing, speech, language, or developmental delay should indicate necessity for a diagnostic audiological evaluation at the time of concern.

**Level 1A Risk Factors:** If the infant falls within this category, and has passed the newborn screening, it is recommended the baby is referred for a full diagnostic evaluation by 3 months. Frequent follow-up is recommended.

**Level 1B Risk Factors:** If the infant falls within this category, and has passed the newborn screening, it is recommended the baby is referred for a full diagnostic evaluation by 6 months. Frequent follow-up is recommended.

**Level 2 Risk Factors:** If the infant falls within this category, and has passed the newborn screening, it is recommended the child be referred for a full diagnostic evaluation by 12 months, and no later than 20-24 months.

*Routine follow-up thereafter is as the discretion of the audiologist/PCP*

**References:**


Maine Newborn Hearing Program, 207-287-8427

Updated August 2015
Appendix B

Newborn Hearing Screen Referral

Child’s Information
Name: __________________________ Date of Birth (MM/DD/YYYY): __________________________
Birth Facility: __________________________ Screen Facility (if different): __________________________

Hearing Screen Date (MM/DD/YYYY): / / (Only enter information on most RECENT screen)
Result (circle for each ear) Right Ear: Pass Refer N/A Left Ear: Pass Refer N/A
Risk Factor(s): __________________________ Risk Level (circle): 1A Level 1B Level 2

Recommended follow up to be set up by Parents: □ 3 months (level 1A) □ 6 months (level 1B) □ 12 months of age (level 2)

Parent/Guardian Contact Information
Name: __________________________
Address: __________________________
Phone #:(_____) __________________________ Alternate#: (_____) __________________________

*Alternate Contact (Friend/Relative)
Name: __________________________ (Relation to Child): __________________________
Phone #: (_____) __________________________ Alternate#: (_____) __________________________

Follow-up Information (Please check all applicable boxes)
□ Audiologic Diagnostic Evaluation (audiology appointment) scheduled:
  Location: __________________________ Phone: (_____) __________________________
  Date & Time: __________________________
□ Hearing Screen results provided to primary care provider
  PCP Name: __________________________ Phone: (_____) __________________________
  Fax: (_____) __________________________
□ Refusal for follow-up screening/audiological assessment
  (Complete refusal form and fax both referral and refusal forms to MNHP and PCP)

Audiology Evaluation Facilities Infants

Portland
□ Maine Medical Partners ENT □ MKM ENT Associates
  1250 Forest Avenue 43 Baxter Blvd
  Portland, ME 04103 Portland, ME 04101
  P: (207) 797-5753 P: (207) 535-115
  F: (207) 797-9571 F: (207) 775-337

□ Northeast Hearing & Speech
  75 West Commercial Street, Suite 205
  P: (207) 874-1065
  F: (207) 874-1068

Lewiston
□ Central Maine Hearing Center □ L/A Hearing Center
  12 High Street, Suite 102 72 Strawberry Ave
  Lewiston, ME 04240 Lewiston, ME 04240
  P: (207) 786-9949 P: (207) 782-2150
  F: (207) 786-9948 F: (207) 782-3621

Bangor
□ Eastern Maine Medical Center □ Warren Center /PCHC
  905 Union St, Suite 10 922 Union Street, Suite 3
  Bangor, ME 04401 Bangor, ME 04401
  P: (207) 973-7365 P: (207) 941-2850
  F: (207) 973-3246 F: (207) 941-2852

Waterville
□ Maine General Medical Center
  149 North St
  Waterville, ME 04901
  P: (207) 872-4383 F: (207) 872-4222

*MNHP Fax (207) 287-4743
# Appendix C

Maine CDC Newborn Hearing Program  
Division of Population Health, Department of Health & Human Services

## AUDIOLOGY EVALUATION FACILITIES FOR INFANTS

Infants who do not pass newborn hearing screening should be referred to one of these category A facilities for a full audiological diagnostic evaluation.

### CATEGORY A

These facilities have indicated they provide full audiological diagnostic evaluation (this includes ABR with frequency specific results) recommended by the MNHP for infants birth to 6 months who are referred from hearing screening programs.  
((#) = facility has indicated medical center affiliation for sedated testing, if needed.)

<table>
<thead>
<tr>
<th>Facility</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BANGOR</strong></td>
<td>Eastern Maine Healthcare Mall</td>
<td>(207)973-7365</td>
<td>(207)973-5246</td>
</tr>
<tr>
<td>(一号)</td>
<td>905 Union St, Suite 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bangor ME 04401</td>
<td>Phone: (207)973-7365</td>
<td>Fax: (207)973-5246</td>
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<tr>
<td><strong>BANGOR</strong></td>
<td>Warren Center/PCHC</td>
<td>(207)404-8080</td>
<td>(207)404-2852</td>
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<tr>
<td>992 Union Street, Suite 3</td>
<td>Phone: (207)404-8080</td>
<td>Fax: (207)404-2852</td>
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</tr>
<tr>
<td>Bangor ME 04401</td>
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<td></td>
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<tr>
<td><strong>LEWISTON</strong></td>
<td>Central Maine Hearing Center</td>
<td>(207)786-9949</td>
<td>(207)786-9948</td>
</tr>
<tr>
<td>12 High Street, Suite 102</td>
<td>Phone: (207)786-9949</td>
<td>Fax: (207)786-9948</td>
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<tr>
<td>Lewiston, ME 04240</td>
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<tr>
<td><strong>LEWISTON</strong></td>
<td>L/A Hearing Center</td>
<td>(207)782-2150</td>
<td>(207)782-3621</td>
</tr>
<tr>
<td>72 Strawberry Ave</td>
<td>Phone: (207)782-2150</td>
<td>Fax: (207)782-3621</td>
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<tr>
<td>Lewiston, ME 04240</td>
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<tr>
<td><strong>PORTLAND</strong></td>
<td>Maine Medical Partners ENT (一号)</td>
<td>(207)797-5755</td>
<td>(207)797-9571</td>
</tr>
<tr>
<td>1250 Forest Avenue</td>
<td>Phone: (207)797-5755</td>
<td>Fax: (207)797-9571</td>
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<tr>
<td>Portland, ME 04103</td>
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<td><strong>PORTLAND</strong></td>
<td>MKM ENT Associates</td>
<td>(207)535-1150</td>
<td>(207)775-3578</td>
</tr>
<tr>
<td>43 Baxter Blvd</td>
<td>Phone: (207)535-1150</td>
<td>Fax: (207)775-3578</td>
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<tr>
<td><strong>PORTLAND</strong></td>
<td>Northeast Hearing and Speech</td>
<td>(207)874-1065</td>
<td>(207)874-1068</td>
</tr>
<tr>
<td>75 West Commercial Street, Suite 205</td>
<td>Phone: (207)874-1065</td>
<td>Fax: (207)874-1068</td>
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<tr>
<td><strong>WATERVILLE</strong></td>
<td>Maine General Medical Center</td>
<td>(207)872-4583</td>
<td>(207)872-4222</td>
</tr>
<tr>
<td>149 North St</td>
<td>Phone: (207)872-4583</td>
<td>Fax: (207)872-4222</td>
<td></td>
</tr>
<tr>
<td>Waterville, ME 04901</td>
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</table>

These facilities also provide testing for children over 6 months of age

Facility information is accurate as of June 2015. Information may change due to changes in staffing and diagnostic capacity. Please notify the Maine Newborn Hearing Program with any corrections and updates. (207) 287-5427
# Appendix D

Maine CDC Newborn Hearing Program  
Division of Population Health, Department of Health & Human Services  
PEDIATRIC AUDIOLOGICAL FACILITIES

## CATEGORY B

These facilities have indicated they provide pediatric audiological testing procedures for children over 6 months of age, with services including, but not limited to, soundfield testing, screening prior to electrophysiological testing, otocoustic emission testing, and support services for hearing aid fitting. (*) = facility able to provide high frequency tympanometry testing.

<table>
<thead>
<tr>
<th>Location</th>
<th>Facility Name</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
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<tbody>
<tr>
<td>Augusta</td>
<td>Maine General Medical Center</td>
<td>12 Strawberry Ave, Suite 3</td>
<td>(207) 629-3900</td>
<td>(207) 629-3900</td>
</tr>
<tr>
<td>Bangor</td>
<td>Eastern Maine Healthcare Mall</td>
<td>901 Union Street, Suite 10</td>
<td>(207) 975-7265</td>
<td>(207) 975-7265</td>
</tr>
<tr>
<td>Bangor</td>
<td>Warren Center Penobscot Community Health Center (*)</td>
<td>992 Union Street, Suite 3</td>
<td>(207) 544-4080</td>
<td>(207) 441-2652</td>
</tr>
<tr>
<td>Bath</td>
<td>Pine Tree Society (*)</td>
<td>120 Forest Street</td>
<td>(207) 442-3410</td>
<td>(207) 439-1798</td>
</tr>
<tr>
<td>Belfast</td>
<td>Hearing Solutions 127 Northport Avenue</td>
<td>Bath, ME 04459</td>
<td>(207) 442-3410</td>
<td>(207) 439-1798</td>
</tr>
<tr>
<td>Belfast</td>
<td>Waldo County General Hospital Audiology Dept. (*)</td>
<td>118 Northport Avenue</td>
<td>Bath, ME 04459</td>
<td>(207) 930-2680</td>
</tr>
<tr>
<td>Bedford</td>
<td>Maine Medical Partners, ENT (*)</td>
<td>6 Wellington Rd</td>
<td>Biddeford, ME 04005</td>
<td>(207) 284-2287</td>
</tr>
<tr>
<td>Bridgeton</td>
<td>Maine Medical Partners, ENT</td>
<td>55 Main Street</td>
<td>Bridgeton, ME 04499</td>
<td>(207) 643-2144</td>
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<tr>
<td>Ellsworth</td>
<td>Audiology Center of Maine, LLC, PA (*)</td>
<td>77 Beechland Road</td>
<td>Ellsworth, ME 04605</td>
<td>(207) 664-2123</td>
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<tr>
<td>Gorham</td>
<td>Village Hearing Care, P.A. (*)</td>
<td>347 Main Street, Suite 1A</td>
<td>Gorham, ME 04038</td>
<td>(207) 659-9877</td>
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<tr>
<td>Kittery</td>
<td>Family Ear, Nose, and Throat (*)</td>
<td>35 Walker St, Suite 200</td>
<td>Kittery, ME 03845</td>
<td>(207) 351-3524</td>
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<tr>
<td>Lewiston</td>
<td>Central Maine Hearing Center (*)</td>
<td>12 High Street, Suite 102</td>
<td>Lewiston, ME 04450</td>
<td>(207) 785-5949</td>
</tr>
<tr>
<td>Lewiston</td>
<td>LA Hearing Center (*)</td>
<td>72 Strawberry Avenue</td>
<td>Lewiston, ME 04450</td>
<td>(207) 782-2620</td>
</tr>
<tr>
<td>Norway</td>
<td>Maine Medical Partners, ENT</td>
<td>193 Main Street</td>
<td>Norway, ME 04266</td>
<td>(207) 742-2635</td>
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<tr>
<td>Portland</td>
<td>InterMed (*)</td>
<td>84 Marginal Way</td>
<td>Portland, ME 04103</td>
<td>(207) 626-1891</td>
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<td>Portland</td>
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<td>1230 Forest Avenue</td>
<td>Portland, ME 04103</td>
<td>(207) 797-4768</td>
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<td>Portland</td>
<td>Mark Hammond Assoc., Inc (*)</td>
<td>43 Baxter Blvd</td>
<td>Portland, ME 04101</td>
<td>(207) 846-1140</td>
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<td>Portage</td>
<td>Northeast Hearing and Speech (*)</td>
<td>73 West Commercial St, Suite 201</td>
<td>Portland, ME 04101</td>
<td>(207) 974-1066</td>
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<tr>
<td>Presque Isle</td>
<td>Aural Rehabilitation Services (*)</td>
<td>6 S Martin Avenue</td>
<td>Presque Isle, ME 04769</td>
<td>(207) 764-0401</td>
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<tr>
<td>Presque Isle</td>
<td>Penobscot ENT (*)</td>
<td>65 Columbia St</td>
<td>Presque Isle, ME 04769</td>
<td>(207) 760-1010</td>
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<tr>
<td>Rockport</td>
<td>Folly Bank Audiology (*)</td>
<td>200 Main Street</td>
<td>Rockport, ME 04856</td>
<td>(207) 639-4080</td>
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<tr>
<td>Waterville</td>
<td>Anna Glatz Audiology</td>
<td>139 Silver Street</td>
<td>Waterville, ME 04901</td>
<td>(207) 872-4000</td>
</tr>
</tbody>
</table>

Facility information is accurate as of July 2014. Information may change due to changes in staffing and diagnostic capacity. Please notify the Maine CDC Newborn Hearing Program with any corrections and updates. (207) 287-9427