NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 1354 **NQF Project:** Child Health Quality Measures 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Hearing screening prior to hospital discharge (EHDI-1a)
De.2 **Brief description of measure***:* This measure assesses the proportion of births that have been screened for hearing loss before hospital discharge. *Numbering within the parentheses references the US national extension quality measure identifiers developed for the Use Cases published in the Integrating the Healthcare Enterprise (IHE) Quality, Research and Public Health (QRPH) EHDI Technical Framework Supplement available at www.ihe.net/Technical_Framework/index.cfm#quality
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** This measure is paired with other measures relevant to the monitoring and measurement of the early screening evaluation and intervention process.
De.4 **National Priority Partners Priority Area:** Population health De.5 **IOM Quality Domain**: Effectiveness De.6 **Consumer Care Need:** Living with illness

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:**	**A** **Y**☐ **N**☐

A.3 **Measure Steward Agreement:** Government entity and in the public domain - no agreement necessary A.4 **Measure Steward Agreement attached:**	
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐
C. The intended use of the measure includes <u>both</u> public reporting <u>and</u> quality improvement. ►**Purpose:**	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Frequently performed procedure 1a.2 1a.3 **Summary of Evidence of High Impact:** U.S. Preventive Services Task Force. The USPSTF recommends screening for hearing loss in all newborn infants. There is good evidence that newborn hearing screening testing is highly accurate and leads to earlier identification and treatment of infants with hearing loss. Good-quality evidence shows that early detection improves language outcomes. http://www.uspreventiveservicestaskforce.org/uspstf08/newbornhear/newbhearrs.pdf 1a.4 **Citations for Evidence of High Impact:** Nelson HD, Bougatsos C, Nygren P. Universal Newborn Hearing Screening: Systematic Review to Update the 2001 U.S. Preventive Services Task Force Recommendation. AHRQ Publication No. 08-05117-EF-4, July 2008. Agency for Healthcare Research and Quality (AHRQ), Rockville, MD. http://www.ahrq.gov/clinic/uspstf08/newbornhear/newbornart.htm	**1a** C☐ P☐ M☐ N☐
1b. Opportunity for Improvement 1b.1 **Benefits (improvements in quality) envisioned by use of this measure:** From page 194 of the 2007 Joint Committee on Infant Hearing (JCIH) Year 2007 Position Statement: Principles and Guidelines for Early	**1b** C☐ P☐ M☐

Hearing Detection and Intervention Programs(http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals)
"The JCIH supports the concept of regular measurements of performance and recommends routine monitoring of these measures for interprogram comparison and continuous quality improvement. Performance benchmarks represent a consensus of expert opinion in the field of newborn hearing screening and intervention. The benchmarks are the minimal requirements that should be attained by high quality programs. Frequent measures of quality permit prompt recognition and correction of any unstable component of the EHDI process."

N☐

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
http://www.cdc.gov/ncbddd/ehdi/data.htm

1b.3 Citations for data on performance gap:
"Identifying Infants with Hearing Loss --- United States, 1999—2007." CDC Morbidity and Mortality Weekly Report (MMWR). March 5, 2010 / 59(08);220-223.
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5908a2.htm
"Newborn hearing screening and follow-up: are children receiving recommended services?" Public Health Rep. 2010 Mar-Apr;125(2):199-207.

1b.4 Summary of Data on disparities by population group:
Births occurring in small and rural birthing facilities are more likely not to receive inpatient hearing screening.

1b.5 Citations for data on Disparities:
Some state statutes (e.g. Texas and Kentucky) exempt hospitals with small birth cohorts from requiring hearing screening for all infants.

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Children with hearing loss who are screened for hearing loss at birth have better language outcomes at school age than those not screened. Infants identified with hearing loss through universal screening have significantly earlier referral, diagnosis, and treatment than those identified in other ways. Language outcomes at school age strengthen the case for newborn hearing screening but are also dependent on effective methods of referral, follow-up, and treatment.

1c.2-3. Type of Evidence: Cohort study, Observational study, Evidence-based guideline, Expert opinion, Systematic synthesis of research

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
U.S. Preventive Services Task Force (www.ahrq.gov/clinic/uspstf/uspsnbhr.htm)
Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Joint Committee on Infant Hearing. Pediatrics 2007;120;898-921
(http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals)

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):**
Grade: B (Recommendation by the USPSTF recommends screening for hearing loss in all newborn infants.)

1c.6 Method for rating evidence: Scientific evidence review conducted by the Oregon Evidence-based Practice Center under contract to the Agency for Healthcare Research and Quality

1c.7 Summary of Controversy/Contradictory Evidence: There is limited evidence about the harms of screening, with conflicting research findings regarding anxiety associated with false-positive test results. There is limited information about the harms of treatment.

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1c.8 **Citations for Evidence** (*other than guidelines*)**:** 1c.9 **Quote the Specific guideline recommendation** (*including guideline number and/or page number*)**:** "All infants should have access to hearing screening using a physiologic measure at no later than 1 month of age." Page 900. Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Joint Committee on Infant Hearing. 1c.10 **Clinical Practice Guideline Citation:** Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Joint Committee on Infant Hearing. Pediatrics 2007;120;898-921 (http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals) 1c.11 **National Guideline Clearinghouse or other URL:** Newborn Screening Coding and Terminology Guide. http://newbornscreeningcodes.nlm.nih.gov/nb/sc/condition/HEAR 1c.12 **Rating of strength of recommendation** (*also provide narrative description of the rating and by whom*)**:** Grade: B (Recommendation by the USPSTF recommends screening for hearing loss in all newborn infants.) 1c.13 **Method for rating strength of recommendation** (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*: 1c.14 **Rationale for using this guideline over others:**	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 **Do you have a web page where current detailed measure specifications can be obtained?** S.2 **If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 **Numerator Statement** (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*)**:** Numerator contains all live births during the measurement time period born at a facility and screened for hearing loss prior to discharge. 2a.2 **Numerator Time Window** (*The time period in which cases are eligible for inclusion in the numerator*)**:** The measurement time period varies upon needs of the particular user (e.g. calendar year, quarterly, monthly) but must be the same for both the numerator and denominator. 2a.3 **Numerator Details** (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*)**:** Total number with "Hearing Screening Performed": evidence of hearing screening performed. (LOINC# 54109-4: Newborn hearing screen – right = Pass LA10392-1 OR Refer LA10393-9 AND LOINC# 54108-6: Newborn	**2a-specs** **C☐** **P☐** **M☐** **N☐**

hearing screen – left= Pass LA10392-1 OR Refer LA10393-9) before discharge

2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured***):**
All live births during the measurement time period born at a facility and discharged without being screened OR screened prior to discharge.

2a.5 Target population gender: Female, Male
2a.6 Target population age range: Newborn period

2a.7 Denominator Time Window (*The time period in which cases are eligible for inclusion in the denominator***):**
The time period varies upon needs of the particular user (e.g. calendar year, quarterly, monthly) but must be the same for both the numerator and denominator.

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):**
Total number of newborns discharged. Joint Commission National Quality Core Measures - Discharge Status OR
with "Hearing Screening Performed": evidence of hearing screening performed. (LOINC# 54109-4: Newborn hearing screen – right = Pass LA10392-1 OR Refer LA10393-9 AND LOINC# 54108-6: Newborn hearing screen – left= Pass LA10392-1 OR Refer LA10393-9)

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population***):** Patient deceased prior to discharge and without being screened, parental refusal, or not performed due to medical exclusion.

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
Joint Commission Discharge Disposition - Death Value Set (86986.v1) 1.3.6.1.4.1.33895.1.3.0.12. "Patient Deceased": Patient has expired.
LOINC# 54109-4: Newborn hearing screen – right OR LOINC# 54108-6: Newborn hearing screen – left includes "Parental refusal" (LA6644-4) OR Not performed, medical exclusion - not indicated (LA12409-1)

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**

2a.12-13 Risk Adjustment Type: No risk adjustment necessary

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Higher score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
(1) The time period for births included in the estimate is specified (see 2a.2, 2a.7).
(2) All live births that occurred at a facility during the time period are selected.
(3) Result of step 2 is filtered to remove children who died prior to discharge and without being screened, whose parent(s) refused, or children who were not screened due to medical reasons (see 2a.9, 2a.10). This result is saved

The numerator is calculated using the following step:
(4) Result of step 3 is filtered to be limited to the subset that received a screen (see 2a.3) prior to discharge. This subset would include babies that have been screened, but are not yet discharged. This result is saved as the numerator (see 2a.1).

The denominator is calculated using the following steps:

(5) Result of step 3 is filtered to be limited to the subset that (a) has been discharged, AND (b) did not receive a screen (see 2a.8). This result is saved.
(6) Result of step 4 (i.e., the numerator) is added to the result of step 5. This result is saved as the denominator (see 2a.4).

EHDI-1a is calculated using the following step:
(7) EHDI-1a is calculated by dividing the numerator (result of step 4) by the denominator (result of step 6).

2a.22 **Describe the method for discriminating performance** *(e.g., significance testing)*:
Method to discriminate performance is based upon jurisdictionally based statistical measurement reflecting local and national variability.

2a.23 **Sampling (Survey) Methodology** *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
not applicable

2a.24 **Data Source (***Check the source(s) for which the measure is specified and tested)*
Public health data/vital statistics, Registry data

2a.25 **Data source/data collection instrument (***Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
Electronic Health/Medical Record, Public health information system

2a.26-28 **Data source/data collection instrument reference web page URL or attachment:** URL
www.hitsp.org AND www.ihe.net/Technical_Framework/index.cfm#quality AND
www.cdc.gov/ncbddd/ehdi/data.htm

2a.29-31 **Data dictionary/code table web page URL or attachment:** URL
http://newbornscreeningcodes.nlm.nih.gov AND www.hitsp.org AND
www.ihe.net/Technical_Framework/index.cfm#quality

2a.32-35 **Level of Measurement/Analysis** (*Check the level(s) for which the measure is specified and tested)*
Clinicians : Individual, Facility/Agency, Population : National, Population : states

2a.36-37 **Care Settings (***Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 **Clinical Services** (*Healthcare services being measured, check all that apply*)
Clinicians: Audiologist, Clinicians: Nurses, Clinicians: PA/NP/Advanced Practice Nurse, Clinicians: Physicians (MD/DO), Clinicians: PT/OT/Speech

TESTING/ANALYSIS

2b. Reliability testing

2b.1 **Data/sample** *(description of data/sample and size)*: Data used in this measure are included in the EHR. As noted in the NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties, "…the EHR will be considered the authoritative source of clinical information and legal record of care. Quality measures based on EHRs require exporting clinical information recorded by healthcare clinicians from discrete computer readable fields; therefore, measurement errors due to manual abstraction, coding by persons other than the originator, or transcription are eliminated."
As these data elements are extracted from EHRs using computer programming, they "are by virtue of automation repeatable (reliable); therefore, testing at the data element level should focus on validity… reliability of data items may be bypassed if validity of data items is demonstrated."
EHR data used in this measure reflect part of a national, population-based public health surveillance data collection. Data are collected at the individual-child level within each state/territory and reported nationally at an aggregated state-level to CDC. This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 47 states and 2 territories reported newborn hearing screening data on a total of 3,345,629 births.

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2b.2 Analytic Method *(type of reliability & rationale, method for testing)*: As noted in 2b.1., given data are extracted from EHRs, "reliability of data items may be bypassed if validity of data items is demonstrated". (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties) **2b.3 Testing Results** *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*: While the use of EHRs for data elements reflects a particular strength of this measure, "EHRs and EHR measures are new and will most likely require some adjustment of local EHR structures and recording practices to meet standards." (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties). This has been and will continue to be addressed in the manner recommended in the Guidance document cited above. First, nationally, CDC EHDI has and will continue to provide states and territories with a summary of results of measures reported as part of the national population-based public health data collection. This allows them to identify and address potential discrepancies. Similarly, EHDI programs are and will continue to be encouraged to provide similar feedback to their reporting sources as a means of quality control and programmatic feedback. Second, state EHDI programs have been and will continue to be encouraged to conduct their own reliability/validity studies, and to encourage data quality studies on the part of their reporting sources.	
2c. Validity testing **2c.1 Data/sample** *(description of data/sample and size)*: Data used in this measure reflect EHR extracted information that is part of a national, population-based public health surveillance data collection. Data are collected at the individual-child level within each state/territory, and reported at state-level aggregate form nationally to CDC. This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 47 states and 2 territories reported newborn hearing screening data on a total of 3,345,629 births. **2c.2 Analytic Method** *(type of validity & rationale, method for testing)*: A formal and systematic testing of face validity of the measure score as an indicator of quality has been conducted in order to serve as an acceptable indicator for validity of the measure score (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties). This evaluation has been conducted through the Joint Committee on Infant Hearing (JCIH), the Directors of Speech and Hearing Programs in State Health and Welfare Agencies (DSHPSHWA) and the CDC EHDI Data Committee. **2c.3 Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*: Face validity has been systematically assessed by relevant stakeholders in order to assess whether the measure represents quality care for this specific topic and whether the focus of this measure is the most important aspect of quality for this specific topic (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties).	**2c** C☐ P☐ M☐ N☐
2d. Exclusions Justified **2d.1 Summary of Evidence supporting exclusion(s):** Not applicable –exclusions are limited to cases of infant death prior to discharge and without being screened, parental refusal, or medical exclusion. **2d.2 Citations for Evidence:** Not applicable – see 2d.1. **2d.3 Data/sample** *(description of data/sample and size)*: Not applicable – see 2d.1. **2d.4 Analytic Method** *(type analysis & rationale)*: Not applicable – see 2d.1. **2d.5 Testing Results** *(e.g., frequency, variability, sensitivity analyses)*: Not applicable – see 2d.1.	**2d** C☐ P☐ M☐ N☐ NA☐
2e. Risk Adjustment for Outcomes/ Resource Use Measures	**2e**

2e.1 Data/sample *(description of data/sample and size)*: Not applicable – no risk adjustment is included **2e.2 Analytic Method** *(type of risk adjustment, analysis, & rationale)*: Not applicable – no risk adjustment is included **2e.3 Testing Results** *(risk model performance metrics)*: Not applicable – no risk adjustment is included **2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:** Not applicable – no risk adjustment is included	C☐ P☐ M☐ N☐ NA ☐
2f. Identification of Meaningful Differences in Performance **2f.1 Data/sample from Testing or Current Use** *(description of data/sample and size)*: National, population-based public health surveillance data, collected at the individual-child level within each state/territory, and reported at state-level aggregate form nationally to CDC. This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 47 states and 2 territories reported newborn hearing screening data on a total of 3,345,629 births. **2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Statistical analysis comparing individual entities (provider, network of providers, state/territory) to the mean level of performance for similar entities. When appropriate, this can be limited to similar entities within a given jurisdiction (e.g., performance of a specific provider relative to other providers in a state) or nationally (e.g., mean performance across an entire state relative to other state/territories). In addition, performance can be evaluated through direct comparison to current national standards of performance (e.g., CDC National Goals, Joint Committee on Infant Hearing,Healthy People 2020.) **2f.3 Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*: For statistical analyses comparing individual entities to the mean level of performance for similar entities, performance that is 2 standard deviations below the corresponding mean can be flagged. When appropriate, this can be done both within a given jurisdiction and nationally. For example, overall performance for a low performing state may be more than 2 standard deviations below the mean for all states/territories, resulting in that state being identified. However, within that state, there may be no significant difference among providers (i.e., all are performing equally poorly). For direct comparisons to current national standards, identification will consist of (1) a determination that performance falls below the standard, and (2) a measure of the difference between observed performance and the stated standard.	**2f** C☐ P☐ M☐ N☐
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: All data will be collected through Electronic Health Records – not applicable **2g.2 Analytic Method** *(type of analysis & rationale)*: All data will be collected through Electronic Health Records – not applicable **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*: All data will be collected through Electronic Health Records – not applicable	**2g** C☐ P☐ M☐ N☐ NA ☐
2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: Not applicable – measure is not stratified **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	**2h** C☐ P☐ M☐ N☐ NA ☐

Follow-up analysis can be performed at state and national levels based upon disparities noted in 1b.4 / 1b.5	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	**2** **C☐** **P☐** **M☐** **N☐**
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** In use **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** Healthy People 2010 objective 28-11: Increase the proportion of newborns who are screened for hearing loss by age 1 month, have audiologic evaluation by age 3 months, and are enrolled in appropriate intervention services by age 6 months. Proposed Healthy People 2020 ENT-VSL HP2020-8: Increase the proportion of newborns who are screened for hearing loss by no later than age 1 month, have audiologic evaluation by age 3 months, and are enrolled in appropriate intervention services by age 6 months. CDC Early Hearing Detection and Intervention (EHDI) Screening and Follow-up Survey (OMB No. 0920-0733) http://www.cdc.gov/ncbddd/ehdi/documents/EHDI_Web_Draft_Survey_12_06.pdf HRSA Title V Block Grant MCHB National Performance Measure #12: Percentage of newborns who have been screened for hearing before hospital discharge. https://perfdata.hrsa.gov/mchb/TVISReports/MeasurementData/MeasurementDataMenu.aspx **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** HRSA Title V Block Grant MCHB National Performance Measure #12: Percentage of newborns who have been screened for hearing before hospital discharge. https://perfdata.hrsa.gov/mchb/TVISReports/MeasurementData/MeasurementDataMenu.aspx **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) **3a.4 Data/sample** *(description of data/sample and size)***:** CDC Survey (http://www.cdc.gov/ncbddd/ehdi/data.htm) Summary of 2007 National CDC EHDI Data: Number Screened = 3,345,629 **3a.5 Methods** *(e.g., focus group, survey, QI project)***:** Hearing Screening and Follow-up Survey (HSFS): OMB No. 0920-0733 **3a.6 Results** *(qualitative and/or quantitative results and conclusions)***:** Quantitative: "Identifying Infants with Hearing Loss --- United States, 1999—2007." CDC Morbidity and Mortality Weekly Report (MMWR). March 5, 2010 / 59(08);220-223. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5908a2.htm	**3a** **C☐** **P☐** **M☐** **N☐**
3b/3c. Relation to other NQF-endorsed measures	

3b.1 NQF # and Title of similar or related measures: no current NQF endorsed measure	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): **3b.2 Are the measure specifications harmonized? If not, why?** The Centers for Disease Control and Prevention (CDC), the HRSA Maternal and Child Health Bureau (MCHB) and the National Committee for Quality Assurance (NCQA) have submitted 2010 Child Health Quality Measures to NQF that relate to the topic of newborn screening, however the measures target different care settings and data sources. CDC, MCHB, and NCQA are collaborating to ensure the measure specifications have distinctive additive value and are harmonized.	**3b** C☐ P☐ M☐ N☐ NA ☐
3c. Distinctive or Additive Value **3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** **5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**	**3c** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry), Survey	**4a** C☐ P☐ M☐ N☐
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) Yes **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.**	**4b** C☐ P☐ M☐ N☐
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** C☐ P☐ M☐ N☐ NA ☐

4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** The use of EHRs for this measure provide a number of strengths that facilitate data quality, including EHRs serving as the authoritative source of clinical information and legal record of care. Furthermore, the use of discrete, computer readable fields results in reduced measurement error that may emerge from manual abstraction, third party coding, or transcription errors. Nevertheless, potential sources of error exist and include incorrect measure, code, or logic specification, as well as incorrect programming, system structure, or data exporting code, or inconsistent field definitions across providers or users. These can be audited through quality control measures. For example, CDC EHDI provides states and territories with a summary of results of measures reported as part of the national population-based public health data collection. This allows them to identify and address potential discrepancies. Similarly, EHDI programs are encouraged to provide similar feedback to their reporting sources as a means of quality control and programmatic feedback. Furthermore, state EHDI programs are encouraged to conduct their own reliability/validity studies, and to encourage data quality studies on the part of their reporting sources.	**4d** C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Requires an accurate standardized denominator and numerator to successfully determine that all infants have been accounted for and received necessary care. The limitation has been that providers have only reported on a subset of infants seen. **4e.2 Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** Hearing screening prior to hospital discharge is not a proprietary measure. Public health EHDI programs have already assumed the cost to implement and report this measure. Federal funds have been provided to public health programs for this data collection. **4e.3 Evidence for costs:** **4e.4 Business case documentation:**	**4e** C☐ P☐ M☐ N☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** C☐ P☐ M☐ N☐
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited** ☐
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y**☐ **N**☐ **A**☐
CONTACT INFORMATION	
Co.1 Measure Steward (Intellectual Property Owner) **Co.1 Organization** Centers for Disease Control and Prevention, Early Hearing Detection and Intervention (EHDI), 1600 Clifton Road NE,	

MS E-88, Atlanta, Georgia, 30333

Co.2 **Point of Contact**
John, Eichwald, M.A. FAAA, jeichwald@cdc.gov, 404-498-3961-

Measure Developer If different from Measure Steward
Co.3 **Organization**
Centers for Disease Control and Prevention, Early Hearing Detection and Intervention (EHDI), 1600 Clifton Road NE, MS E-88, Atlanta, Georgia, 30333

Co.4 **Point of Contact**
Craig, Mason, Ph.D., Craig_Mason@umit.maine.edu, 207-581-9059-

Co.5 **Submitter If different from Measure Steward POC**
John, Eichwald, M.A. FAAA, jeichwald@cdc.gov, 404-498-3961-, Centers for Disease Control and Prevention

Co.6 **Additional organizations that sponsored/participated in measure development**
On July 24, the Joint Committee on Infant Hearing (JCIH) voted unanimously to proceed with the submission these EHDI measures to NQF. Liaison representatives were present from all of the participating organizations: American Academy of Pediatrics (AAP), American Academy of Audiology (AAA), American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS), American Speech-Language-Hearing Association (ASHA), Alexander Graham Bell Association for the Deaf and Hard of Hearing, Council of Education of the Deaf (CED), and Directors of Speech and Hearing Programs in State Health and Welfare
Agencies (DSHPSHWA).

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 **Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**
CDC EHDI Data Committee and the Joint Committee on Infant Hearing (JCIH) both participated in the development of EHDI quality benchmarks on which this measure is based.

Ad.2 **If adapted, provide name of original measure:**
Ad.3-5 **If adapted, provide original specifications URL or attachment**

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 **Year the measure was first released:** 2000
Ad.7 **Month and Year of most recent revision:** 10, 2007
Ad.8 **What is your frequency for review/update of this measure?**
Ad.9 **When is the next scheduled review/update for this measure?**

Ad.10 **Copyright statement/disclaimers:**

Ad.11 -13 **Additional Information web page URL or attachment:** URL http://jcih.org/posstatemts.htm

Date of Submission (*MM/DD/YY*)**:** 04/15/2011

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 1357 **NQF Project:** Child Health Quality Measures 2010

MEASURE DESCRIPTIVE INFORMATION

De.1 Measure Title: Outpatient hearing screening of infants who did not complete screening before hospital discharge (EHDI-1c)

De.2 Brief description of measure: This measure assesses the proportion of all newborn infants who did not complete a hearing screen prior to discharge, who went on to receive an outpatient screen before the child was 31 days of age.

*Numbering within the parentheses references the US national extension quality measure identifiers developed for the Use Cases published in the Integrating the Healthcare Enterprise (IHE) Quality, Research and Public Health (QRPH) EHDI Technical Framework Supplement available at www.ihe.net/Technical_Framework/index.cfm#quality

1.1-2 Type of Measure: Process
De.3 If included in a composite or paired with another measure, please identify composite or paired measure
This measure is paired with other measures relevant to the monitoring and measurement of the early screening evaluation and intervention process.

De.4 National Priority Partners Priority Area: Population health
De.5 IOM Quality Domain: Effectiveness
De.6 Consumer Care Need: Living with illness

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* **A.1 Do you attest that the measure steward holds intellectual property rights to the measure and the**	**A** **Y** ☐ **N** ☐

right to use aspects of the measure owned by another entity (e.g., risk model, code set)? Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Government entity and in the public domain - no agreement necessary A.4 **Measure Steward Agreement attached:**	
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:**	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** No, testing will be completed within 12 months D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Frequently performed procedure 1a.2 1a.3 **Summary of Evidence of High Impact:** U.S. Preventive Services Task Force. The USPSTF recommends screening for hearing loss in all newborn infants. There is good evidence that newborn hearing screening testing is highly accurate and leads to earlier identification and treatment of infants with hearing loss. Good-quality evidence shows that early detection improves language outcomes. http://www.uspreventiveservicestaskforce.org/uspstf08/newbornhear/newbhearrs.pdf 1a.4 **Citations for Evidence of High Impact:** Nelson HD, Bougatsos C, Nygren P. Universal Newborn Hearing Screening: Systematic Review to Update the 2001 U.S. Preventive Services Task Force Recommendation. AHRQ Publication No. 08-05117-EF-4, July 2008. Agency for Healthcare Research and Quality (AHRQ), Rockville, MD. http://www.uspreventiveservicestaskforce.org/uspstf08/newbornhear/newbornart.pdf	**1a** C☐ P☐ M☐ N☐
1b. Opportunity for Improvement	**1b**

1b.1 Benefits (improvements in quality) envisioned by use of this measure: From page 194 of the 2007 Joint Committee on Infant Hearing (JCIH) Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs(http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals)
"The JCIH supports the concept of regular measurements of performance and recommends routine monitoring of these measures for interprogram comparison and continuous quality improvement. Performance benchmarks represent a consensus of expert opinion in the field of newborn hearing screening and intervention. The benchmarks are the minimal requirements that should be attained by high quality programs. Frequent measures of quality permit prompt recognition and correction of any unstable component of the EHDI process."

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
http://www.cdc.gov/ncbddd/ehdi/data.htm

1b.3 Citations for data on performance gap:
"Identifying Infants with Hearing Loss --- United States, 1999—2007." CDC Morbidity and Mortality Weekly Report (MMWR). March 5, 2010 / 59(08);220-223.
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5908a2.htm
"Newborn hearing screening and follow-up: are children receiving recommended services?" Public Health Rep. 2010 Mar-Apr;125(2):199-207.

1b.4 Summary of Data on disparities by population group:
The Hispanic population is most likely not to receive the outpatient rescreen
Infants born to mothers who have 12 years of education or less were less likely to obtain the rescreen.
Males are less likely to receive the outpatient rescreen

1b.5 Citations for data on Disparities:
A Programmatic Analysis of a Newborn Hearing Screening Program for Evaluation and Improvement. Theses submitted to the Faculty of the Graduate School of the University of Colorado in partial fulfillment of the requirements for the degree of Doctor of Philosophy. Vickie R Thomson. 2007.

C☐ P☐ M☐ N☐

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Children with hearing loss who are screened for hearing loss at birth have better language outcomes at school age than those not screened. Infants identified with hearing loss through universal screening have significantly earlier referral, diagnosis, and treatment than those identified in other ways. Language outcomes at school age strengthen the case for newborn hearing screening but are also dependent on effective methods of referral, follow-up, and treatment.

1c.2-3. Type of Evidence: Cohort study, Observational study, Evidence-based guideline, Expert opinion, Systematic synthesis of research

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
U.S. Preventive Services Task Force (www.ahrq.gov/clinic/uspstf/uspsnbhr.htm)
Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Joint Committee on Infant Hearing. Pediatrics 2007;120;898-921
(http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals)

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):**
Grade: B (Recommendation by the USPSTF recommends screening for hearing loss in all newborn infants.)

1c.6 Method for rating evidence: Scientific evidence review conducted by the Oregon Evidence-based

1c
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Practice Center under contract to the Agency for Healthcare Research and Quality. 1c.7 **Summary of Controversy/Contradictory Evidence:** There is limited evidence about the harms of screening, with conflicting research findings regarding anxiety associated with false-positive test results. There is limited information about the harms of treatment 1c.8 **Citations for Evidence** (*other than guidelines*)**:** 1c.9 **Quote the Specific guideline recommendation** (*including guideline number and/or page number*)**:** "Outpatient screening at no later than 1 month of age should also be available to infants who were discharged before receiving the birth admission screening or who were born outside a hospital or birthing center." Page 905. Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Joint Committee on Infant Hearing. 1c.10 **Clinical Practice Guideline Citation:** Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Joint Committee on Infant Hearing. Pediatrics 2007;120;898-921 (http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals 1c.11 **National Guideline Clearinghouse or other URL:** Newborn Screening Coding and Terminology Guide. http://newbornscreeningcodes.nlm.nih.gov/nb/sc/condition/HEAR 1c.12 **Rating of strength of recommendation** (*also provide narrative description of the rating and by whom*)**:** 1c.13 **Method for rating strength of recommendation** (*If different from USPSTF system, also describe rating and how it relates to USPSTF)***:** 1c.14 **Rationale for using this guideline over others:**	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 **Do you have a web page where current detailed measure specifications can be obtained?** S.2 **If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 **Numerator Statement** (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*)**:** Numerator contains the number of infants born at a given facility during the time window with no documented hearing screening performed prior to patient discharge and who have been screened for hearing loss as an outpatient by 30 days of age. 2a.2 **Numerator Time Window** (*The time period in which cases are eligible for inclusion in the numerator*)**:**	**2a-specs** **C☐** **P☐** **M☐** **N☐**

The time period varies upon needs of the particular user (e.g. calendar year, quarterly, monthly) but must be the same for both the numerator and denominator.

2a.3 Numerator Details (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*):
Total number with LOINC# 54109-4: Newborn hearing screen – right OR LOINC# 54108-6: Newborn hearing screen – left equals "Not performed" (LA7304-4)
AND
with "Hearing Screening Performed": evidence of hearing screening performed before the child was 31 days of age. (LOINC# 54109-4: Newborn hearing screen – right = Pass LA10392-1 OR Refer LA10393-9 AND LOINC# 54108-6: Newborn hearing screen – left= Pass LA10392-1 OR Refer LA10393-9).

2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured*):
Denominator contains the number of infants born at a given facility during the time window with no documented hearing screening performed prior to patient discharge.

2a.5 Target population gender: Female, Male
2a.6 Target population age range: Newborn period

2a.7 Denominator Time Window (*The time period in which cases are eligible for inclusion in the denominator*):
The time period varies upon needs of the particular user (e.g. calendar year, quarterly, monthly) but must be the same for both the numerator and denominator.

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions*):
Total number with LOINC# 54109-4: Newborn hearing screen – right OR LOINC# 54108-6: Newborn hearing screen – left equals "Not performed" (LA7304-4).

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population*): Patient deceased before the child was 31 days of age, parental refusal, or not performed due to medical exclusion.

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions*):
Joint Commission Discharge Disposition - Death Value Set (86986.v1) 1.3.6.1.4.1.33895.1.3.0.12. "Patient Deceased": Patient has expired.
LOINC# 54109-4: Newborn hearing screen – right OR LOINC# 54108-6: Newborn hearing screen – left includes "Parental refusal" (LA6644-4) OR Not performed, medical exclusion - not indicated (LA12409-1)

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions*):

2a.12-13 Risk Adjustment Type: No risk adjustment necessary

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method*):

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Higher score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps*):
(1) The time period for births included in the estimate is specified (see 2a.2, 2a.7).
(2) All live births that occurred at a facility during the time period are selected.
(3) Result of step 2 is filtered to remove children who died before the child was 31 days of age, cases of parental refusal, and/or cases not screened due to medical exclusion (see 2a.9, 2a.10).
(4) Result of step 3 is filtered to be limited to the subset that (a) has been discharged from the hospital following birth, AND (b) had Newborn Hearing Screening identified as "not performed" at the time of

discharge (see 2a.8). This result is saved

The numerator is calculated using the following step:
(5) Result of step 4 is further filtered to be limited to the subset with a hearing screening performed after discharge (see 2a.3) AND before the child was 31 days of age (see 2a.2). This result is saved as the numerator (see 2a.1).

The denominator is calculated using the following step:
(6) Result from Step 4 is further filtered to exclude individuals who both (a) are under the age of 31 days AND who also (b) have not received a screen following discharge. The result is saved as the denominator (see 2a.4).

EHDI-1c is calculated using the following step:
(7) EHDI-1c is calculated by dividing the numerator (result of step 5) by the denominator (result of step 6).

2a.22 **Describe the method for discriminating performance** *(e.g., significance testing)*:
Method to discriminate performance is based upon jurisdictionally based statistical measurement reflecting local and national variability.

2a.23 **Sampling (Survey) Methodology** *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
not applicable

2a.24 **Data Source (***Check the source(s) for which the measure is specified and tested)*
Electronic Clinical Data, Public health data/vital statistics, Registry data

2a.25 **Data source/data collection instrument (***Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
Electronic Health/Medical Record, Public health information system

2a.26-28 **Data source/data collection instrument reference web page URL or attachment:** URL
www.hitsp.org AND www.ihe.net/Technical_Framework/index.cfm#quality AND
www.cdc.gov/ncbddd/ehdi/data.htm

2a.29-31 **Data dictionary/code table web page URL or attachment:** URL
http://newbornscreeningcodes.nlm.nih.gov AND www.hitsp.org AND
www.ihe.net/Technical_Framework/index.cfm#quality

2a.32-35 **Level of Measurement/Analysis** (*Check the level(s) for which the measure is specified and tested)*
Clinicians : Individual, Facility/Agency, Population : National, Population : states

2a.36-37 **Care Settings (***Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 **Clinical Services** (*Healthcare services being measured, check all that apply*)
Clinicians: Audiologist, Clinicians: Nurses, Clinicians: PA/NP/Advanced Practice Nurse, Clinicians: Physicians (MD/DO), Clinicians: PT/OT/Speech

TESTING/ANALYSIS

2b. Reliability testing

2b.1 **Data/sample** *(description of data/sample and size)*: Data used in this measure are included in the EHR. As noted in the NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties, "…the EHR will be considered the authoritative source of clinical information and legal record of care. Quality measures based on EHRs require exporting clinical information recorded by healthcare clinicians from discrete computer readable fields; therefore, measurement errors due to manual abstraction, coding by persons other than the originator, or transcription are eliminated."
As these data elements are extracted from EHRs using computer programming, they "are by virtue of automation repeatable (reliable); therefore, testing at the data element level should focus on validity…

2b
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P ☐
M ☐
N ☐

reliability of data items may be bypassed if validity of data items is demonstrated." EHR data used in this measure reflect part of a national, population-based public health surveillance data collection. Data are collected at the individual-child level within each state/territory and reported nationally at an aggregated state-level to CDC. This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 47 states and 2 territories reported newborn hearing screening data on a total of 3,345,629 births. **2b.2 Analytic Method** *(type of reliability & rationale, method for testing)*: As noted in 2b.1., given data are extracted from EHRs, "reliability of data items may be bypassed if validity of data items is demonstrated". (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties) **2b.3 Testing Results** *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*: While the use of EHRs for data elements reflects a particular strength of this measure, "EHRs and EHR measures are new and will most likely require some adjustment of local EHR structures and recording practices to meet standards." (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties). This has been and will continue to be addressed in the manner recommended in the Guidance document cited above. First, nationally, CDC EHDI has and will continue to provide states and territories with a summary of results of measures reported as part of the national population-based public health data collection. This allows them to identify and address potential discrepancies. Similarly, EHDI programs are and will continue to be encouraged to provide similar feedback to their reporting sources as a means of quality control and programmatic feedback. Second, state EHDI programs have been and will continue to be encouraged to conduct their own reliability/validity studies, and to encourage data quality studies on the part of their reporting sources.	
2c. Validity testing **2c.1 Data/sample** *(description of data/sample and size)*: Data used in this measure reflect EHR extracted information that is part of a national, population-based public health surveillance data collection. Data are collected at the individual-child level within each state/territory, and reported at state-level aggregate form nationally to CDC. This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 47 states and 2 territories reported newborn hearing screening data on a total of 3,345,629 births. **2c.2 Analytic Method** *(type of validity & rationale, method for testing)*: A formal and systematic testing of face validity of the measure score as an indicator of quality has been conducted in order to serve as an acceptable indicator for validity of the measure score (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties). This evaluation has been be conducted through the CDC EHDI Data Committee. **2c.3 Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*: . Face validity has been systematically assessed by relevant stakeholders in order to assess whether the measure represents quality care for this specific topic and whether the focus of this measure is the most important aspect of quality for this specific topic (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties).	**2c** C☐ P☐ M☐ N☐
2d. Exclusions Justified **2d.1 Summary of Evidence supporting exclusion(s):** Not applicable –exclusions are limited to cases of infant death before the child was 31 days of age, medical exclusion or parental refusal. **2d.2 Citations for Evidence:** Not applicable – see 2d.1. **2d.3 Data/sample** *(description of data/sample and size)*: Not applicable – see 2d.1.	**2d** C☐ P☐ M☐ N☐ NA ☐

2d.4 Analytic Method *(type analysis & rationale)*: Not applicable – see 2d.1. **2d.5 Testing Results** *(e.g., frequency, variability, sensitivity analyses)*: Not applicable – see 2d.1.	
2e. Risk Adjustment for Outcomes/ Resource Use Measures **2e.1 Data/sample** *(description of data/sample and size)*: Not applicable – no risk adjustment is included **2e.2 Analytic Method** *(type of risk adjustment, analysis, & rationale)*: Not applicable – no risk adjustment is included **2e.3 Testing Results** *(risk model performance metrics)*: Not applicable – no risk adjustment is included **2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:** Not applicable – no risk adjustment is included	**2e** C☐ P☐ M☐ N☐ NA ☐
2f. Identification of Meaningful Differences in Performance **2f.1 Data/sample from Testing or Current Use** *(description of data/sample and size)*: National, population-based public health surveillance data, collected at the individual-child level within each state/territory, and reported at state-level aggregate form nationally to CDC. This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 47 states and 2 territories reported newborn hearing screening data on a total of 3,345,629 births. **2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Statistical analysis comparing individual entities (provider, network of providers, state/territory) to the mean level of performance for similar entities. When appropriate, this can be limited to similar entities within a given jurisdiction (e.g., performance of a specific provider relative to other providers in a state) or nationally (e.g., mean performance across an entire state relative to other state/territories). In addition, performance can be evaluated through direct comparison to current national standards of performance (e.g., CDC National Goals, Joint Committee on Infant Hearing,Healthy People 2020.) **2f.3 Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*: For statistical analyses comparing individual entities to the mean level of performance for similar entities, performance that is 2 standard deviations below the corresponding mean can be flagged. When appropriate, this can be done both within a given jurisdiction and nationally. For example, overall performance for a low performing state may be more than 2 standard deviations below the mean for all states/territories, resulting in that state being identified. However, within that state, there may be no significant difference among providers (i.e., all are performing equally poorly). For direct comparisons to current national standards, identification will consist of (1) a determination that performance falls below the standard, and (2) a measure of the difference between observed performance and the stated standard.	**2f** C☐ P☐ M☐ N☐
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: All data will be collected through Electronic Health Records – not applicable **2g.2 Analytic Method** *(type of analysis & rationale)*: All data will be collected through Electronic Health Records – not applicable **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*: All data will be collected through Electronic Health Records – not applicable	**2g** C☐ P☐ M☐ N☐ NA ☐

2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)***:** Not applicable – measure is not stratified **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:** Follow-up analysis can be performed at state and national levels based upon disparities noted in 1b.4 / 1b.5	**2h** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	***2*** C☐ P☐ **M** ☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** In use **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** Healthy People 2010 objective 28-11: Increase the proportion of newborns who are screened for hearing loss by age 1 month, have audiologic evaluation by age 3 months, and are enrolled in appropriate intervention services by age 6 months. Proposed Healthy People 2020 ENT-VSL HP2020-8: Increase the proportion of newborns who are screened for hearing loss by no later than age 1 month, have audiologic evaluation by age 3 months, and are enrolled in appropriate intervention services by age 6 months. **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) **3a.4 Data/sample** *(description of data/sample and size)***:** CDC Survey (http://www.cdc.gov/ncbddd/ehdi/data.htm) Summary of 2007 National CDC EHDI Data: Number Screened = 3,345,629 **3a.5 Methods** *(e.g., focus group, survey, QI project)***:** Hearing Screening and Follow-up Survey (HSFS): OMB No. 0920-0733 **3a.6 Results** *(qualitative and/or quantitative results and conclusions)***:** Qualitative: "Identifying Infants with Hearing Loss --- United States, 1999—2007." CDC Morbidity and Mortality Weekly Report (MMWR). March 5, 2010 / 59(08);220-223. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5908a2.htm	**3a** C☐ P☐ M☐ N☐
3b/3c. Relation to other NQF-endorsed measures **3b.1 NQF # and Title of similar or related measures:** no current NQF endorsed measure	

(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): **3b.2 Are the measure specifications harmonized? If not, why?** The Centers for Disease Control and Prevention (CDC), the HRSA Maternal and Child Health Bureau (MCHB) and the National Committee for Quality Assurance (NCQA) have submitted 2010 Child Health Quality Measures to NQF that relate to the topic of newborn screening, however the measures target different care settings and data sources. CDC, MCHB, and NCQA are collaborating to ensure the measure specifications have distinctive additive value and are harmonized.	**3b** C☐ P☐ M☐ N☐ NA ☐
3c. Distinctive or Additive Value **3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** **5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**	**3c** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	**Eval Rating**
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** C☐ P☐ M☐ N☐
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) Yes **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.**	**4b** C☐ P☐ M☐ N☐
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** C☐ P☐ M☐ N☐ NA ☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and**	**4d** C☐ P☐

describe how these potential problems could be audited. If audited, provide results. The use of EHRs for this measure provide a number of strengths that facilitate data quality, including EHRs serving as the authoritative source of clinical information and legal record of care. Furthermore, the use of discrete, computer readable fields results in reduced measurement error that may emerge from manual abstraction, third party coding, or transcription errors. Nevertheless, potential sources of error exist and include incorrect measure, code, or logic specification, as well as incorrect programming, system structure, or data exporting code, or inconsistent field definitions across providers or users. These can be audited through quality control measures. For example, CDC EHDI provides states and territories with a summary of results of measures reported as part of the national population-based public health data collection. This allows them to identify and address potential discrepancies. Similarly, EHDI programs are encouraged to provide similar feedback to their reporting sources as a means of quality control and programmatic feedback. Furthermore, state EHDI programs are encouraged to conduct their own reliability/validity studies, and to encourage data quality studies on the part of their reporting sources.	M☐ N☐
4e. Data Collection Strategy/Implementation 4e.1 **Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Requires an accurate standardized denominator and numerator to successfully determine that all infants have been accounted for and received necessary care. The limitation has been that providers have only reported on a subset of infants seen. 4e.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** Outpatient hearing screening of infants who did not complete screening before hospital discharge is not a proprietary measure. Many public health EHDI programs have already assumed the cost to implement and report this measure. Depending on availability, federal funds can be provided for additional public health programs to strengthen infrastructure which might be needed for this data collection. 4e.3 **Evidence for costs:** 4e.4 **Business case documentation:**	4e C☐ P☐ M☐ N☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	4
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	4 C☐ P☐ M☐ N☐
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	Time-limited ☐
Steering Committee: Do you recommend for endorsement? **Comments:**	Y☐ N☐ A☐
CONTACT INFORMATION	
Co.1 **Measure Steward (Intellectual Property Owner)** Co.1 **Organization** Centers for Disease Control and Prevention, Early Hearing Detection and Intervention (EHDI), 1600 Clifton Road NE,	

MS E-88, Atlanta, Georgia, 30333

Co.2 **Point of Contact**
John, Eichwald, M.A. FAAA, jeichwald@cdc.gov, 404-498-3961-

Measure Developer If different from Measure Steward
Co.3 **Organization**
Centers for Disease Control and Prevention, Early Hearing Detection and Intervention (EHDI), 1600 Clifton Road NE, MS E-88, Atlanta, Georgia, 30333

Co.4 **Point of Contact**
Craig, Mason, Ph.D., Craig_Mason@umit.maine.edu, 207-581-9059-

Co.5 **Submitter If different from Measure Steward POC**
John, Eichwald, M.A. FAAA, jeichwald@cdc.gov, 404-498-3961-, Centers for Disease Control and Prevention

Co.6 **Additional organizations that sponsored/participated in measure development**
On July 24, the Joint Committee on Infant Hearing (JCIH) voted unanimously to proceed with the submission these EHDI measures to NQF. Liaison representatives were present from all of the participating organizations: American Academy of Pediatrics (AAP), American Academy of Audiology (AAA), American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS), American Speech-Language-Hearing Association (ASHA), Alexander Graham Bell Association for the Deaf and Hard of Hearing, Council of Education of the Deaf (CED), and Directors of Speech and Hearing Programs in State Health and Welfare Agencies (DSHPSHWA).

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 **Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**
CDC EHDI Data Committee and the Joint Committee on Infant Hearing (JCIH) both participated in the development of EHDI quality benchmarks on which this measure is based.

Ad.2 **If adapted, provide name of original measure:**
Ad.3-5 **If adapted, provide original specifications URL or attachment**

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 **Year the measure was first released:** 2000
Ad.7 **Month and Year of most recent revision:** 10, 2007
Ad.8 **What is your frequency for review/update of this measure?**
Ad.9 **When is the next scheduled review/update for this measure?**

Ad.10 **Copyright statement/disclaimers:**

Ad.11 -13 **Additional Information web page URL or attachment:** URL http://jcih.org/posstatemts.htm

Date of Submission (*MM/DD/YY*)**:** 04/15/2011

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 1360 **NQF Project:** Child Health Quality Measures 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Audiological Evaluation no later than 3 months of age (EHDI-3)
De.2 **Brief description of measure***:* This measure assesses the percentage of newborns who did not pass hearing screening and have an audiological evaluation no later than 3 months of age.
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** This measure is paired with other measures relevant to the monitoring and measurement of the early screening evaluation and intervention process.
De.4 **National Priority Partners Priority Area:** Population health De.5 **IOM Quality Domain**: Timeliness De.6 **Consumer Care Need:** Living with illness

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Government entity and in the public domain - no agreement necessary A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and	**B**

update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:**	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers 1a.2 1a.3 **Summary of Evidence of High Impact:** U.S. Preventive Services Task Force. The USPSTF recommends screening for hearing loss in all newborn infants. There is good evidence that newborn hearing screening testing is highly accurate and leads to earlier identification and treatment of infants with hearing loss. Good-quality evidence shows that early detection improves language outcomes. http://www.uspreventiveservicestaskforce.org/uspstf08/newbornhear/newbhearrs.pdf 1a.4 **Citations for Evidence of High Impact:** Nelson HD, Bougatsos C, Nygren P. Universal Newborn Hearing Screening: Systematic Review to Update the 2001 U.S. Preventive Services Task Force Recommendation. AHRQ Publication No. 08-05117-EF-4, July 2008. Agency for Healthcare Research and Quality (AHRQ), Rockville, MD. http://www.ahrq.gov/clinic/uspstf08/newbornhear/newbornart.htm	**1a** C☐ P☐ M☐ N☐
1b. Opportunity for Improvement 1b.1 **Benefits (improvements in quality) envisioned by use of this measure:** From page 194 of the 2007 Joint Committee on Infant Hearing (JCIH) Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Program (http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals) "The JCIH supports the concept of regular measurements of performance and recommends routine monitoring of these measures for interprogram comparison and continuous quality improvement. Performance benchmarks represent a consensus of expert	**1b** C☐ P☐ M☐ N☐

opinion in the field of newborn hearing screening and intervention. The benchmarks are the minimal requirements that should be attained by high quality programs. Frequent measures of quality permit prompt recognition and correction of any unstable component of the EHDI process."

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
http://www.cdc.gov/ncbddd/ehdi/data.htm

1b.3 Citations for data on performance gap:
"Identifying Infants with Hearing Loss --- United States, 1999—2007." CDC Morbidity and Mortality Weekly Report (MMWR). March 5, 2010 / 59(08);220-223.
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5908a2.htm
"Newborn hearing screening and follow-up: are children receiving recommended services?" Public Health Rep. 2010 Mar-Apr;125 (2):199-207.

1b.4 Summary of Data on disparities by population group:

1b.5 Citations for data on Disparities:

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Children with hearing loss who are screened for hearing loss at birth have better language outcomes at school age than those not screened. Infants identified with hearing loss through universal screening have significantly earlier referral, diagnosis, and treatment than those identified in other ways. Language outcomes at school age strengthen the case for newborn hearing screening but are also dependent on effective methods of referral, follow-up, and treatment.

1c.2-3. Type of Evidence: Cohort study, Observational study, Evidence-based guideline, Expert opinion, Systematic synthesis of research

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
U.S. Preventive Services Task Force (www.ahrq.gov/clinic/uspstf/uspsnbhr.htm) Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Joint Committee on Infant Hearing. Pediatrics 2007;120;898-921 (http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals)

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom*)**:**
Grade: B (Recommendation by the USPSTF recommends screening for hearing loss in all newborn infants.)

1c.6 Method for rating evidence: Scientific evidence review conducted by the Oregon Evidence-based Practice Center under contract to the Agency for Healthcare Research and Quality

1c.7 Summary of Controversy/Contradictory Evidence: There is limited evidence about the harms of screening, with conflicting research findings regarding anxiety associated with falsepositive test results. There is limited information about the harms of treatment.

1c.8 Citations for Evidence (*other than guidelines*)**:**

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number*)**:**
"All infants who do not pass the initial hearing screening and the subsequent rescreening should have appropriate audiological and medical evaluations to confirm the presence of hearing loss at no later than 3 months of age." Page 900. Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Joint Committee on Infant Hearing.

1c
C ☐
P ☐
M ☐
N ☐

1c.10 **Clinical Practice Guideline Citation:** Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Joint Committee on Infant Hearing. Pediatrics 2007;120;898-921 (http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals) 1c.11 **National Guideline Clearinghouse or other URL:** Newborn Screening Coding and Terminology Guide. http://newbornscreeningcodes.nlm.nih.gov/nb/sc/condition/HEAR 1c.12 **Rating of strength of recommendation** (*also provide narrative description of the rating and by whom*)**:** Grade: B (Recommendation by the USPSTF recommends screening for hearing loss in all newborn infants.) 1c.13 **Method for rating strength of recommendation** (*If different from USPSTF system, also describe rating and how it relates to USPSTF)***:** 1c.14 **Rationale for using this guideline over others:**	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 **Do you have a web page where current detailed measure specifications can be obtained?** S.2 **If yes, provide web page URL:** **2a. Precisely Specified**	**2a-specs** **C☐** **P☐** **M☐** **N☐**
2a.1 **Numerator Statement** (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*)**:** Numerator contains the number of infants born during the time window who have not passed ("Fail / Refer") hearing screening and whose age is less than 91 days at the time of audiological diagnosis. 2a.2 **Numerator Time Window** (*The time period in which cases are eligible for inclusion in the numerator*)**:** The measurement time period varies upon needs of the particular user (e.g. calendar year, quarterly, monthly) but must be the same for both the numerator and denominator. 2a.3 **Numerator Details** (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*)**:** Total number of infants whose hearing screening results indicate "Fail / Refer" (LOINC# 54109-4: Newborn hearing screen – right = Refer LA10393-9 OR LOINC# 54108-6: OR Newborn hearing screen – left= Refer LA10393-9) AND with "Audiological Diagnosis" (SNOMED-CT equals “Hearing Normal” 164059009, “Permanent Conductive” 44057004, “Sensorineural” 60700002, “Mixed” 77507001, OR “Auditory Neuropathy Spectrum Disorder” 443805006) AND age of diagnosis is less than 91 days at the time of diagnosis.	
2a.4 **Denominator Statement** (*Brief, text description of the denominator - target population being measured*)**:** Denominator contains the number of infants born during the time window who have not passed ("Fail / Refer") hearing screening.	

2a.5 Target population gender: Female, Male
2a.6 Target population age range: Infancy

2a.7 Denominator Time Window (*The time period in which cases are eligible for inclusion in the denominator***):**
The measurement time period varies upon needs of the particular user (e.g. calendar year, quarterly, monthly) but must be the same for both the numerator and denominator.

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):**
Total number of infants whose hearing screening results indicate "Fail / Refer" (LOINC# 54109-4: Newborn hearing screen – right = Refer LA10393-9 OR LOINC# 54108-6: OR Newborn hearing screen – left= Refer LA10393-9).

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population***):** Patient deceased: Patient has expired prior to 91 days of age.

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
Death Value Set.

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**

2a.12-13 Risk Adjustment Type: No risk adjustment necessary

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Higher score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
(1) The time period for births included in the estimate is specified (see 2a.2, 2a.7).
(2) All live births that occurred during the time period are selected.
(3) Result of step 2 is filtered to remove children who died prior to 91 days of age (see 2a.9, 2a.10).

The denominator is calculated using the following step:
(4) Result of step 3 is filtered to be limited to the subset who did not pass ("Fail / Refer") their hearing screening (see 2a.8). This result is saved as the denominator (see 2a.4).

The numerator is calculated using the following step:
(5) Result of step 4 is further filtered limited to the subset for whom an Audiological Diagnosis of permanent hearing loss was made prior to 91 days of age (see 2a.3). This result is saved as the numerator (see 2a.1).

EHDI-3 is calculated using the following step:
(6) EHDI-3 is calculated by dividing the numerator (result of step 5) by the denominator (result of step 4).

2a.22 Describe the method for discriminating performance *(e.g., significance testing)***:**
Method to discriminate performance is based upon jurisdictionally based statistical measurement reflecting local and national variability.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
not applicable

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested***)**
Electronic Clinical Data, Public health data/vital statistics

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
Electronic Health/Medical Record, Public health information system

2a.26-28 Data source/data collection instrument reference web page URL or attachment: URL
www.hitsp.org AND www.ihe.net/Technical_Framework/index.cfm#quality AND
www.cdc.gov/ncbddd/ehdi/data.htm

2a.29-31 Data dictionary/code table web page URL or attachment: URL
http://newbornscreeningcodes.nlm.nih.gov AND www.hitsp.org AND
www.ihe.net/Technical_Framework/index.cfm#quality

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Clinicians : Individual, Facility/Agency, Population : National, Population : states

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Ambulatory Care : Clinic, Ambulatory Care : Office

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: Audiologist, Clinicians: Nurses, Clinicians: PA/NP/Advanced Practice Nurse, Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)***:** Data used in this measure are included in the EHR. As noted in the NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties, "…the EHR will be considered the authoritative source of clinical information and legal record of care. Quality measures based on EHRs require exporting clinical information recorded by healthcare clinicians from discrete computer readable fields; therefore, measurement errors due to manual abstraction, coding by persons other than the originator, or transcription are eliminated."
As these data elements are extracted from EHRs using computer programming, they "are by virtue of automation repeatable (reliable); therefore, testing at the data element level should focus on validity… reliability of data items may be bypassed if validity of data items is demonstrated."
EHR data used in this measure reflect part of a national, population-based public health surveillance data collection. Data are collected at the individual-child level within each state/territory and reported nationally at an aggregated state-level to CDC. This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 47 states and territories reported 65,339 infants did not pass their final or most recent hearing screening

2b.2 Analytic Method *(type of reliability & rationale, method for testing)***:**
As noted in 2b.1., given data are extracted from EHRs, "reliability of data items may be bypassed if validity of data items is demonstrated". (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties)

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)***:**
While the use of EHRs for data elements reflects a particular strength of this measure, "EHRs and EHR measures are new and will most likely require some adjustment of local EHR structures and recording practices to meet standards." (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties). This has been and will continue to be addressed in the manner recommended in the Guidance document cited above. First, nationally, CDC EHDI has and will continue to provide states and territories with a summary of results of measures reported as part of the national population-based public health data collection. This allows them to identify and address potential discrepancies. Similarly, EHDI programs are and will continue to be encouraged to provide similar feedback to their reporting sources as a means of quality control and programmatic feedback. Second, state EHDI programs have been and will continue to be encouraged to conduct their own reliability/validity studies, and

2b
C ☐
P ☐
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N ☐

to encourage data quality studies on the part of their reporting sources.	
2c. Validity testing 2c.1 **Data/sample** *(description of data/sample and size)*: Data used in this measure reflect EHR extracted information that is part of a national, population-based public health surveillance data collection. Data are collected at the individual-child level within each state/territory, and reported at state-level aggregate form nationally to CDC. This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 47 states and territories reported 65,339 infants did not pass their final or most recent hearing screening. 2c.2 **Analytic Method** *(type of validity & rationale, method for testing)*: A formal and systematic testing of face validity of the measure score as an indicator of quality has been conducted in order to serve as an acceptable indicator for validity of the measure score (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties). This evaluation has been conducted through the Joint Committee on Infant Hearing (JCIH), the Directors of Speech and Hearing Programs in State Health and Welfare Agencies (DSHPSHWA) and the CDC EHDI Data Committee. 2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*: Face validity has been systematically assessed by relevant stakeholders in order to assess whether the measure represents quality care for this specific topic and whether the focus of this measure is the most important aspect of quality for this specific topic (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties).	**2c** C☐ P☐ M☐ N☐
2d. Exclusions Justified 2d.1 **Summary of Evidence supporting exclusion(s):** Not applicable –exclusions are limited to cases of infant death before the child was 91 days of age. 2d.2 **Citations for Evidence:** Not applicable – see 2d.1. 2d.3 **Data/sample** *(description of data/sample and size)*: Not applicable – see 2d.1. 2d.4 **Analytic Method** *(type analysis & rationale)*: Not applicable – see 2d.1. 2d.5 **Testing Results** *(e.g., frequency, variability, sensitivity analyses)*: Not applicable – see 2d.1.	**2d** C☐ P☐ M☐ N☐ NA ☐
2e. Risk Adjustment for Outcomes/ Resource Use Measures 2e.1 **Data/sample** *(description of data/sample and size)*: Not applicable – no risk adjustment is included 2e.2 **Analytic Method** *(type of risk adjustment, analysis, & rationale)*: Not applicable – no risk adjustment is included 2e.3 **Testing Results** *(risk model performance metrics)*: Not applicable – no risk adjustment is included 2e.4 **If outcome or resource use measure is not risk adjusted, provide rationale:** Not applicable – no risk adjustment is included	**2e** C☐ P☐ M☐ N☐ NA ☐
2f. Identification of Meaningful Differences in Performance 2f.1 **Data/sample from Testing or Current Use** *(description of data/sample and size)*: National, population-based public health surveillance data, collected at the individual-child level within each state/territory, and reported at state-level aggregate form nationally to CDC. This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 47 states and territories	**2f** C☐ P☐ M☐ N☐

reported 65,339 infants did not pass their final or most recent hearing screening. 2f.2 **Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Statistical analysis comparing individual entities (provider, network of providers, state/territory) to the mean level of performance for similar entities. When appropriate, this can be limited to similar entities within a given jurisdiction (e.g., performance of a specific provider relative to other providers in a state) or nationally (e.g., mean performance across an entire state relative to other state/territories). In addition, performance can be evaluated through direct comparison to current national standards of performance (e.g., CDC National Goals, Joint Committee on Infant Hearing,Healthy People 2020.) 2f.3 **Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*: For statistical analyses comparing individual entities to the mean level of performance for similar entities, performance that is 2 standard deviations below the corresponding mean can be flagged. When appropriate, this can be done both within a given jurisdiction and nationally. For example, overall performance for a low performing state may be more than 2 standard deviations below the mean for all states/territories, resulting in that state being identified. However, within that state, there may be no significant difference among providers (i.e., all are performing equally poorly). For direct comparisons to current national standards, identification will consist of (1) a determination that performance falls below the standard, and (2) a measure of the difference between observed performance and the stated standard.	
2g. Comparability of Multiple Data Sources/Methods 2g.1 **Data/sample** *(description of data/sample and size)*: All data will be collected through Electronic Health Records – not applicable 2g.2 **Analytic Method** *(type of analysis & rationale)*: All data will be collected through Electronic Health Records – not applicable 2g.3 **Testing Results** *(e.g., correlation statistics, comparison of rankings)*: All data will be collected through Electronic Health Records – not applicable	**2g** C☐ P☐ M☐ N☐ NA ☐
2h. Disparities in Care 2h.1 **If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: Not applicable – measure is not stratified 2h.2 **If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	**2h** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	**2** C☐ P☐ M☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	Eval Rating
3a. Meaningful, Understandable, and Useful Information 3a.1 **Current Use:** In use	**3a** C☐ P☐ M☐

3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large) (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** Healthy People 2010 objective 28-11: Increase the proportion of newborns who are screened for hearing loss by age 1 month, have audiologic evaluation by age 3 months, and are enrolled in appropriate intervention services by age 6 months. Proposed Healthy People 2020 ENT-VSL HP2020-8: Increase the proportion of newborns who are screened for hearing loss by no later than age 1 month, have audiologic evaluation by age 3 months, and are enrolled in appropriate intervention services by age 6 months. **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years*)**:** CDC Early Hearing Detection and Intervention (EHDI) Screening and Follow-up Survey (OMB No. 0920-0733)http://www.cdc.gov/ncbddd/ehdi/documents/EHDI_Web_Draft_Survey_12_06.pdf **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) **3a.4 Data/sample** *(description of data/sample and size)***:** This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 47 states and territories reported 65,339 infants did not pass their final or most recent hearing screening. **3a.5 Methods** *(e.g., focus group, survey, QI project)***:** Hearing Screening and Follow-up Survey (HSFS): OMB No. 0920-0733 **3a.6 Results** *(qualitative and/or quantitative results and conclusions)***:** Qualitative: "Identifying Infants with Hearing Loss --- United States, 1999—2007." CDC Morbidity and Mortality Weekly Report (MMWR). March 5, 2010 / 59(08);220-223. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5908a2.htm	**N**☐
3b/3c. Relation to other NQF-endorsed measures **3b.1 NQF # and Title of similar or related measures:** no current NQF endorsed measure	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): **3b.2 Are the measure specifications harmonized? If not, why?** The Centers for Disease Control and Prevention (CDC), the HRSA Maternal and Child Health Bureau (MCHB) and the National Committee for Quality Assurance (NCQA) have submitted 2010 Child Health Quality Measures to NQF that relate to the topic of newborn screening, however the measures target different care settings and data sources. CDC, MCHB, and NCQA are collaborating to ensure the measure specifications have distinctive additive value and are harmonized.	**3b** **C**☐ **P**☐ **M**☐ **N**☐ **NA** ☐
3c. Distinctive or Additive Value **3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** **5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**	**3c** **C**☐ **P**☐ **M**☐ **N**☐ **NA** ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** **C**☐ **P**☐

	M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes 4a.1-2 **How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry), Survey	4a C☐ P☐ M☐ N☐
4b. Electronic Sources 4b.1 **Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) Yes 4b.2 **If not, specify the near-term path to achieve electronic capture by most providers.**	4b C☐ P☐ M☐ N☐
4c. Exclusions 4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No 4c.2 **If yes, provide justification.**	4c C☐ P☐ M☐ N☐ NA ☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences 4d.1 **Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** The use of EHRs for this measure provide a number of strengths that facilitate data quality, including EHRs serving as the authoritative source of clinical information and legal record of care. Furthermore, the use of discrete, computer readable fields results in reduced measurement error that may emerge from manual abstraction, third party coding, or transcription errors. Nevertheless, potential sources of error exist and include incorrect measure, code, or logic specification, as well as incorrect programming, system structure, or data exporting code, or inconsistent field definitions across providers or users. These can be audited through quality control measures. For example, CDC EHDI provides states and territories with a summary of results of measures reported as part of the national population-based public health data collection. This allows them to identify and address potential discrepancies. Similarly, EHDI programs are encouraged to provide similar feedback to their reporting sources as a means of quality control and programmatic feedback. Furthermore, state EHDI programs are encouraged to conduct their own reliability/validity studies, and to encourage data quality studies on the part of their reporting sources.	4d C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation 4e.1 **Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Requires an accurate standardized denominator and numerator to successfully determine that all infants have been accounted for and received necessary care. The limitation has been that providers have only reported on a subset of infants seen. 4e.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:**	4e C☐ P☐ M☐ N☐

Audiological Evaluation no later than 3 months of age is not a proprietary measure. Public health EHDI programs have already assumed the cost to implement and report this measure. Federal funds have been provided to public health programs for this data collection. 4e.3 **Evidence for costs:** 4e.4 **Business case documentation:**	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**
CONTACT INFORMATION	
Co.1 **Measure Steward (Intellectual Property Owner)** Co.1 **Organization** Centers for Disease Control and Prevention, Early Hearing Detection and Intervention (EHDI), 1600 Clifton Road NE, MS E-88, Atlanta, Georgia, 30333 Co.2 **Point of Contact** John, Eichwald, M.A. FAAA, jeichwald@cdc.gov, 404-498-3961-	
Measure Developer If different from Measure Steward Co.3 **Organization** Centers for Disease Control and Prevention, Early Hearing Detection and Intervention (EHDI), 1600 Clifton Road NE, MS E-88, Atlanta, Georgia, 30333 Co.4 **Point of Contact** Craig, Mason, Ph.D., Craig_Mason@umit.maine.edu, 207-581-9059-	
Co.5 **Submitter If different from Measure Steward POC** John, Eichwald, M.A. FAAA, jeichwald@cdc.gov, 404-498-3961-, Centers for Disease Control and Prevention	
Co.6 **Additional organizations that sponsored/participated in measure development** On July 24, the Joint Committee on Infant Hearing (JCIH) voted unanimously to proceed with the submission these EHDI measures to NQF. Liaison representatives were present from all of the participating organizations: American Academy of Pediatrics (AAP), American Academy of Audiology (AAA), American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS), American Speech-Language-Hearing Association (ASHA), Alexander Graham Bell Association for the Deaf and Hard of Hearing, Council of Education of the Deaf (CED), and Directors of Speech and Hearing Programs in State Health and Welfare Agencies (DSHPSHWA).	
ADDITIONAL INFORMATION	
Workgroup/Expert Panel involved in measure development Ad.1 **Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**	

CDC EHDI Data Committee and the Joint Committee on Infant Hearing (JCIH) both participated in the development of EHDI quality benchmarks on which this measure is based.
Ad.2 If adapted, provide name of original measure: **Ad.3-5 If adapted, provide original specifications URL or attachment**
Measure Developer/Steward Updates and Ongoing Maintenance **Ad.6 Year the measure was first released:** 2000 **Ad.7 Month and Year of most recent revision:** 10, 2007 **Ad.8 What is your frequency for review/update of this measure?** **Ad.9 When is the next scheduled review/update for this measure?**
Ad.10 Copyright statement/disclaimers:
Ad.11 -13 Additional Information web page URL or attachment: URL http://jcih.org/posstatemts.htm
Date of Submission (*MM/DD/YY*)**:** 04/15/2011

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 1361 **NQF Project:** Child Health Quality Measures 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Intervention no later than 6 months of age (EHDI-4a)
De.2 **Brief description of measure:** This measure assesses the proportion of infants with permanent hearing loss who have been referred to intervention services no later than age 6 months of age.
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** This measure is paired with other measures relevant to the monitoring and measurement of the early screening evaluation and intervention process.
De.4 **National Priority Partners Priority Area:** Population health De.5 **IOM Quality Domain**: Timeliness De.6 **Consumer Care Need:** Living with illness

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Government entity and in the public domain - no agreement necessary A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and	**B**

update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:**	C Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	D Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	Met Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	Eval Rating
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers 1a.2 1a.3 **Summary of Evidence of High Impact:** U.S. Preventive Services Task Force. The USPSTF recommends screening for hearing loss in all newborn infants. There is good evidence that newborn hearing screening testing is highly accurate and leads to earlier identification and treatment of infants with hearing loss. Good-quality evidence shows that early detection improves language outcomes. http://www.uspreventiveservicestaskforce.org/uspstf08/newbornhear/newbhearrs.pdf 1a.4 **Citations for Evidence of High Impact:** Nelson HD, Bougatsos C, Nygren P. Universal Newborn Hearing Screening: Systematic Review to Update the 2001 U.S. Preventive Services Task Force Recommendation. AHRQ Publication No. 08-05117-EF-4, July 2008. Agency for Healthcare Research and Quality (AHRQ), Rockville, MD. http://www.uspreventiveservicestaskforce.org/uspstf08/newbornhear/newbornart.pdf	1a C☐ P☐ M☐ N☐
1b. Opportunity for Improvement 1b.1 **Benefits (improvements in quality) envisioned by use of this measure:** From page 194 of the 2007 Joint Committee on Infant Hearing (JCIH) Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs(http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals) "The JCIH supports the concept of regular measurements of performance and recommends routine monitoring of these measures for interprogram comparison and continuous quality improvement.	1b C☐ P☐ M☐ N☐

Performance benchmarks represent a consensus of expert opinion in the field of newborn hearing screening and intervention. The benchmarks are the minimal requirements that should be attained by high quality programs. Frequent measures of quality permit prompt recognition and correction of any unstable component of the EHDI process."

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
http://www.cdc.gov/ncbddd/ehdi/data.htm

1b.3 Citations for data on performance gap:
"Identifying Infants with Hearing Loss --- United States, 1999—2007." CDC Morbidity and Mortality Weekly Report (MMWR). March 5, 2010 / 59(08);220-223.
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5908a2.htm
"Newborn hearing screening and follow-up: are children receiving recommended services?" Public Health Rep. 2010 Mar-Apr;125(2):199-207.

1b.4 Summary of Data on disparities by population group:

1b.5 Citations for data on Disparities:

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Children with hearing loss who are screened for hearing loss at birth have better language outcomes at school age than those not screened. Infants identified with hearing loss through universal screening have significantly earlier referral, diagnosis, and treatment than those identified in other ways. Language outcomes at school age strengthen the case for newborn hearing screening but are also dependent on effective methods of referral, follow-up, and treatment.

1c.2-3. Type of Evidence: Cohort study, Observational study, Evidence-based guideline, Expert opinion, Systematic synthesis of research

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
U.S. Preventive Services Task Force (www.ahrq.gov/clinic/uspstf/uspsnbhr.htm)
Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Joint Committee on Infant Hearing. Pediatrics 2007;120;898-921
(http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals)

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom*)**:**
Grade: B (Recommendation by the USPSTF recommends screening for hearing loss in all newborn infants.)

1c.6 Method for rating evidence: Scientific evidence review conducted by the Oregon Evidence-based Practice Center under contract to the Agency for Healthcare Research and Quality.

1c.7 Summary of Controversy/Contradictory Evidence: There is limited evidence about the harms of screening, with conflicting research findings regarding anxiety associated with false-positive test results. There is limited information about the harms of treatment

1c.8 Citations for Evidence (*other than guidelines*)**:**

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number*)**:**
"For infants with confirmed hearing loss who qualify for Part C services, the percentage for whom parents have signed an IFSP by no later than 6 months of age; the recommended benchmark is 90%." Page 914 from the Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention

1c
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Programs. Joint Committee on Infant Hearing. Pediatrics 2007;120;898-921 (http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals) 1c.10 **Clinical Practice Guideline Citation:** Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Joint Committee on Infant Hearing. Pediatrics 2007;120;898-921 (http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals) 1c.11 **National Guideline Clearinghouse or other URL:** Newborn Screening Coding and Terminology Guide. http://newbornscreeningcodes.nlm.nih.gov/nb/sc/condition/HEAR 1c.12 **Rating of strength of recommendation** (*also provide narrative description of the rating and by whom*)**:** Grade: B (Recommendation by the USPSTF recommends screening for hearing loss in all newborn infants.) 1c.13 **Method for rating strength of recommendation** (*If different from USPSTF system, also describe rating and how it relates to USPSTF*)**:** 1c.14 **Rationale for using this guideline over others:**	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 **Do you have a web page where current detailed measure specifications can be obtained?** S.2 **If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 **Numerator Statement** (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*)**:** Numerator contains the number of infants born during the time window that have been diagnosed with permanent hearing loss, whose age is less than 6 months at the time of referral to intervention services. 2a.2 **Numerator Time Window** (*The time period in which cases are eligible for inclusion in the numerator*)**:** The measurement time period varies upon needs of the particular user (e.g. calendar year, quarterly, monthly) but must be the same for both the numerator and denominator. 2a.3 **Numerator Details** (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*)**:** Total number of infants with "Audiological Diagnosis" (SNOMED-CT equals “Hearing Normal” 164059009, “Permanent Conductive” 44057004, “Sensorineural” 60700002, “Mixed” 77507001, “Auditory Neuropathy Spectrum Disorder” 443805006, “Transient Hearing Loss” 123123005) and date of EHDI referral to education service” (SNOMED-CT 415271004) is less than 181 days since birth.	**2a-specs** **C☐** **P☐** **M☐** **N☐**
2a.4 **Denominator Statement** (*Brief, text description of the denominator - target population being measured*)**:**	

Denominator contains the number of infants born during the time window who that have been diagnosed with permanent hearing loss.

2a.5 **Target population gender:** Female, Male
2a.6 **Target population age range:** Infancy

2a.7 **Denominator Time Window (***The time period in which cases are eligible for inclusion in the denominator***):**
The measurement time period varies upon needs of the particular user (e.g. calendar year, quarterly, monthly) but must be the same for both the numerator and denominator.

2a.8 **Denominator Details (***All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):**
Total number of infants with "Audiological Diagnosis" (SNOMED-CT equals “Hearing Normal” 164059009, “Permanent Conductive” 44057004, “Sensorineural” 60700002, “Mixed” 77507001, or “Auditory Neuropathy Spectrum Disorder” 443805006.

2a.9 **Denominator Exclusions (***Brief text description of exclusions from the target population***):** Patient deceased: Patient has expired prior to 181 days of age.

2a.10 **Denominator Exclusion Details (***All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
Death Value Set.

2a.11 **Stratification Details/Variables (***All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**

2a.12-13 **Risk Adjustment Type:** No risk adjustment necessary

2a.14 **Risk Adjustment Methodology/Variables (***List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**

2a.15-17 **Detailed risk model available Web page URL or attachment:**

2a.18-19 **Type of Score:** Rate/proportion
2a.20 **Interpretation of Score:** Better quality = Higher score
2a.21 **Calculation Algorithm (***Describe the calculation of the measure as a flowchart or series of steps***):**
(1) The time period for births included in the estimate is specified (see 2a.2, 2a.7).
(2) All live births that occurred during the time period for a given provider/practice are selected.
(3) Result of step 2 is filtered to remove children who died prior to 181 days of age (see 2a.9, 2a.10).

The denominator is calculated using the following step:
(4) Result of step 3 is filtered to be limited to the subset with an Audiological Diagnosis of permanent hearing loss (see 2a.8). This result is saved as the denominator (see 2a.4).

The numerator is calculated using the following step:
(5) Result of step 4 is further filtered to be limited to the subset for whom the date of EHDI referral to education service is less than 181 days since birth (see 2a.3). This result is saved as the numerator (see 2a.1).

EHDI-4a is calculated using the following step:
(6) EHDI-4a is calculated by dividing the numerator (result of step 5) by the denominator (result of step 4).

2a.22 **Describe the method for discriminating performance** *(e.g., significance testing)***:**
Method to discriminate performance is based upon jurisdictionally based statistical measurement reflecting local and national variability.

2a.23 **Sampling (Survey) Methodology** *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
not applicable

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Electronic Clinical Data, Public health data/vital statistics

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.*)**:**
Electronic Health/Medical Record, Public health information system

2a.26-28 Data source/data collection instrument reference web page URL or attachment: URL
www.hitsp.org AND www.ihe.net/Technical_Framework/index.cfm#quality AND
www.cdc.gov/ncbddd/ehdi/data.htm

2a.29-31 Data dictionary/code table web page URL or attachment: URL
http://newbornscreeningcodes.nlm.nih.gov AND www.hitsp.org AND
www.ihe.net/Technical_Framework/index.cfm#quality

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Clinicians : Individual, Facility/Agency, Population : National, Population : State

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Ambulatory Care : Clinic, Ambulatory Care : Office

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: Audiologist, Clinicians: Nurses, Clinicians: PA/NP/Advanced Practice Nurse, Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)***:** Data used in this measure are included in the EHR. As noted in the NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties, "…the EHR will be considered the authoritative source of clinical information and legal record of care. Quality measures based on EHRs require exporting clinical information recorded by healthcare clinicians from discrete computer readable fields; therefore, measurement errors due to manual abstraction, coding by persons other than the originator, or transcription are eliminated."
As these data elements are extracted from EHRs using computer programming, they "are by virtue of automation repeatable (reliable); therefore, testing at the data element level should focus on validity… reliability of data items may be bypassed if validity of data items is demonstrated."
EHR data used in this measure reflect part of a national, population-based public health surveillance data collection. Data are collected at the individual-child level within each state/territory and reported nationally at an aggregated state-level to CDC. This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 43 states and territories reported 3,364 infants were identified with permanent congenital hearing loss.

2b.2 Analytic Method *(type of reliability & rationale, method for testing)***:**
As noted in 2b.1., given data are extracted from EHRs, "reliability of data items may be bypassed if validity of data items is demonstrated". (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties)

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)***:**
While the use of EHRs for data elements reflects a particular strength of this measure, "EHRs and EHR measures are new and will most likely require some adjustment of local EHR structures and recording practices to meet standards." (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties). This has been and will continue to be addressed in the manner recommended in the Guidance document cited above. First, nationally, CDC EHDI has and will continue to provide states and territories with a summary of results of measures reported as part of the national population-based public health data collection. This allows them to identify and address potential discrepancies. Similarly, EHDI programs are and will continue to be encouraged to provide similar feedback

2b
C ☐
P ☐
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N ☐

to their reporting sources as a means of quality control and programmatic feedback. Second, state EHDI programs have been and will continue to be encouraged to conduct their own reliability/validity studies, and to encourage data quality studies on the part of their reporting sources.	
2c. Validity testing 2c.1 **Data/sample** *(description of data/sample and size)*: Data used in this measure reflect EHR extracted information that is part of a national, population-based public health surveillance data collection. Data are collected at the individual-child level within each state/territory, and reported at state-level aggregate form nationally to CDC. This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 43 states and territories reported 3,364 infants were identified with permanent congenital hearing loss. 2c.2 **Analytic Method** *(type of validity & rationale, method for testing)*: A formal and systematic testing of face validity of the measure score as an indicator of quality has been conducted in order to serve as an acceptable indicator for validity of the measure score (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties). This evaluation has been conducted through the Joint Committee on Infant Hearing (JCIH), the Directors of Speech and Hearing Programs in State Health and Welfare Agencies (DSHPSHWA) and the CDC EHDI Data Committee. 2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*: Face validity has been systematically assessed by relevant stakeholders in order to assess whether the measure represents quality care for this specific topic and whether the focus of this measure is the most important aspect of quality for this specific topic (NQF draft Guidance for Measure Testing and Evaluating Scientific Acceptability of Measure Properties).	**2c** C☐ P☐ M☐ N☐
2d. Exclusions Justified 2d.1 **Summary of Evidence supporting exclusion(s):** Not applicable –exclusions are limited to cases of infant death before the child was 181 days of age. 2d.2 **Citations for Evidence:** Not applicable – see 2d.1. 2d.3 **Data/sample** *(description of data/sample and size)*: Not applicable – see 2d.1. 2d.4 **Analytic Method** *(type analysis & rationale)*: Not applicable – see 2d.1. 2d.5 **Testing Results** *(e.g., frequency, variability, sensitivity analyses)*: Not applicable – see 2d.1.	**2d** C☐ P☐ M☐ N☐ NA☐
2e. Risk Adjustment for Outcomes/ Resource Use Measures 2e.1 **Data/sample** *(description of data/sample and size)*: Not applicable – no risk adjustment is included 2e.2 **Analytic Method** *(type of risk adjustment, analysis, & rationale)*: Not applicable – no risk adjustment is included 2e.3 **Testing Results** *(risk model performance metrics)*: Not applicable – no risk adjustment is included 2e.4 **If outcome or resource use measure is not risk adjusted, provide rationale:** Not applicable – no risk adjustment is included	**2e** C☐ P☐ M☐ N☐ NA☐
2f. Identification of Meaningful Differences in Performance 2f.1 **Data/sample from Testing or Current Use** *(description of data/sample and size)*: National, population-based public health surveillance data, collected at the individual-child level within each state/territory, and	**2f** C☐ P☐ M☐

reported at state-level aggregate form nationally to CDC. This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 43 states and territories reported 3,364 infants were identified with permanent congenital hearing loss. 2f.2 **Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Statistical analysis comparing individual entities (provider, network of providers, state/territory) to the mean level of performance for similar entities. When appropriate, this can be limited to similar entities within a given jurisdiction (e.g., performance of a specific provider relative to other providers in a state) or nationally (e.g., mean performance across an entire state relative to other state/territories). In addition, performance can be evaluated through direct comparison to current national standards of performance (e.g., CDC National Goals, Joint Committee on Infant Hearing,Healthy People 2020.) 2f.3 **Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*: For statistical analyses comparing individual entities to the mean level of performance for similar entities, performance that is 2 standard deviations below the corresponding mean can be flagged. When appropriate, this can be done both within a given jurisdiction and nationally. For example, overall performance for a low performing state may be more than 2 standard deviations below the mean for all states/territories, resulting in that state being identified. However, within that state, there may be no significant difference among providers (i.e., all are performing equally poorly).	N☐
2g. Comparability of Multiple Data Sources/Methods 2g.1 **Data/sample** *(description of data/sample and size)*: All data will be collected through Electronic Health Records – not applicable 2g.2 **Analytic Method** *(type of analysis & rationale)*: All data will be collected through Electronic Health Records – not applicable 2g.3 **Testing Results** *(e.g., correlation statistics, comparison of rankings)*: All data will be collected through Electronic Health Records – not applicable	**2g** C☐ P☐ M☐ N☐ NA ☐
2h. Disparities in Care 2h.1 **If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: Not applicable – measure is not stratified 2h.2 **If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	**2h** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	**2** C☐ P☐ M ☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	Eval Rating
3a. Meaningful, Understandable, and Useful Information 3a.1 **Current Use:** In use	**3a** C☐ P☐ M☐

3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large) (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** Healthy People 2010 objective 28-11: Increase the proportion of newborns who are screened for hearing loss by age 1 month, have audiologic evaluation by age 3 months, and are enrolled in appropriate intervention services by age 6 months. Proposed Healthy People 2020 ENT-VSL HP2020-8: Increase the proportion of newborns who are screened for hearing loss by no later than age 1 month, have audiologic evaluation by age 3 months, and are enrolled in appropriate intervention services by age 6 months. **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years*)**:** CDC Early Hearing Detection and Intervention (EHDI) Screening and Follow-up Survey (OMB No. 0920-0733) http://www.cdc.gov/ncbddd/ehdi/documents/EHDI_Web_Draft_Survey_12_06.pdf **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) **3a.4 Data/sample** *(description of data/sample and size)***:** This population-based collection of EHDI data has been occurring for over a decade. For the reporting period of calendar year 2007, 43 states and territories reported 3,364 infants were identified with permanent congenital hearing loss. **3a.5 Methods** *(e.g., focus group, survey, QI project)***:** Hearing Screening and Follow-up Survey (HSFS): OMB No. 0920-0733 **3a.6 Results** *(qualitative and/or quantitative results and conclusions)***:** Qualitative: "Identifying Infants with Hearing Loss --- United States, 1999—2007." CDC Morbidity and Mortality Weekly Report (MMWR). March 5, 2010 / 59(08);220-223. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5908a2.htm http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5241a1.htm	**N** ☐
3b/3c. Relation to other NQF-endorsed measures **3b.1 NQF # and Title of similar or related measures:** no current NQF endorsed measure	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): **3b.2 Are the measure specifications harmonized? If not, why?** The Centers for Disease Control and Prevention (CDC), the HRSA Maternal and Child Health Bureau (MCHB) and the National Committee for Quality Assurance (NCQA) have submitted 2010 Child Health Quality Measures to NQF that relate to the topic of newborn screening, however the measures target different care settings and data sources. CDC, MCHB, and NCQA are collaborating to ensure the measure specifications have distinctive additive value and are harmonized.	**3b** **C** ☐ **P** ☐ **M** ☐ **N** ☐ **NA** ☐
3c. Distinctive or Additive Value **3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** **5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**	**3c** **C** ☐ **P** ☐ **M** ☐ **N** ☐ **NA** ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met?	**3**

Rationale:	C☐ P☐ M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes 4a.1-2 **How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry), Survey	4a C☐ P☐ M☐ N☐
4b. Electronic Sources 4b.1 **Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) Yes 4b.2 **If not, specify the near-term path to achieve electronic capture by most providers.**	4b C☐ P☐ M☐ N☐
4c. Exclusions 4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No 4c.2 **If yes, provide justification.**	4c C☐ P☐ M☐ N☐ NA☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences 4d.1 **Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** The use of EHRs for this measure provide a number of strengths that facilitate data quality, including EHRs serving as the authoritative source of clinical information and legal record of care. Furthermore, the use of discrete, computer readable fields results in reduced measurement error that may emerge from manual abstraction, third party coding, or transcription errors. Nevertheless, potential sources of error exist and include incorrect measure, code, or logic specification, as well as incorrect programming, system structure, or data exporting code, or inconsistent field definitions across providers or users. These can be audited through quality control measures. For example, CDC EHDI provides states and territories with a summary of results of measures reported as part of the national population-based public health data collection. This allows them to identify and address potential discrepancies. Similarly, EHDI programs are encouraged to provide similar feedback to their reporting sources as a means of quality control and programmatic feedback. Furthermore, state EHDI programs are encouraged to conduct their own reliability/validity studies, and to encourage data quality studies on the part of their reporting sources.	4d C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation 4e.1 **Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Requires an accurate standardized denominator and numerator to successfully determine that all infants have been accounted for and received necessary care. The limitation has been that providers have only reported on a subset of infants seen.	4e C☐ P☐ M☐ N☐

4e.2 Costs to implement the measure (*costs of data collection, fees associated with proprietary measures*): Intervention no later than 6 months of age is not a proprietary measure Public health EHDI programs have already assumed the cost to implement and report this measure. Federal funds have been provided to public health programs for this data collection. **4e.3 Evidence for costs:** **4e.4 Business case documentation:**	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**
CONTACT INFORMATION	
Co.1 Measure Steward (Intellectual Property Owner) **Co.1 Organization** Centers for Disease Control and Prevention, Early Hearing Detection and Intervention (EHDI), 1600 Clifton Road NE, MS E-88, Atlanta, Georgia, 30333 **Co.2 Point of Contact** John, Eichwald, M.A. FAAA, jeichwald@cdc.gov, 404-498-3961-	
Measure Developer If different from Measure Steward **Co.3 Organization** Centers for Disease Control and Prevention, Early Hearing Detection and Intervention (EHDI), 1600 Clifton Road NE, MS E-88, Atlanta, Georgia, 30333 **Co.4 Point of Contact** Craig, Mason, Ph.D., Craig_Mason@umit.maine.edu, 207-581-9059-	
Co.5 Submitter If different from Measure Steward POC John, Eichwald, M.A. FAAA, jeichwald@cdc.gov, 404-498-3961-, Centers for Disease Control and Prevention	
Co.6 Additional organizations that sponsored/participated in measure development On July 24, the Joint Committee on Infant Hearing (JCIH) voted unanimously to proceed with the submission these EHDI measures to NQF. Liaison representatives were present from all of the participating organizations: American Academy of Pediatrics (AAP), American Academy of Audiology (AAA), American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS), American Speech-Language-Hearing Association (ASHA), Alexander Graham Bell Association for the Deaf and Hard of Hearing, Council of Education of the Deaf (CED), and Directors of Speech and Hearing Programs in State Health and Welfare Agencies (DSHPSHWA).	
ADDITIONAL INFORMATION	
Workgroup/Expert Panel involved in measure development **Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations.**	

Describe the members' role in measure development. CDC EHDI Data Committee and the Joint Committee on Infant Hearing (JCIH) both participated in the development of EHDI quality benchmarks on which this measure is based.
Ad.2 If adapted, provide name of original measure: **Ad.3-5 If adapted, provide original specifications URL or attachment**
Measure Developer/Steward Updates and Ongoing Maintenance **Ad.6 Year the measure was first released:** 2000 **Ad.7 Month and Year of most recent revision:** 10, 2007 **Ad.8 What is your frequency for review/update of this measure?** **Ad.9 When is the next scheduled review/update for this measure?**
Ad.10 Copyright statement/disclaimers:
Ad.11 -13 Additional Information web page URL or attachment: URL http://jcih.org/posstatemts.htm
Date of Submission (*MM/DD/YY*)**:** 08/30/2010

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 1402 **NQF Project:** Child Health Quality Measures 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Newborn Hearing Screening
De.2 **Brief description of measure:** The percentage of children who turned 6 months old during the measurement year who had documentation in the medical record of a review of their newborn hearing screening results by their 3-month birthday.
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** This measure appears in the composite Comprehensive Well Care by Age 6 Months.
De.4 **National Priority Partners Priority Area:** Care coordination, Population health De.5 **IOM Quality Domain**: Effectiveness, Timeliness De.6 **Consumer Care Need:** Staying healthy

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** Proprietary measure A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐

B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:**	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Severity of illness, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Approximately 12,000 infants are born with a hearing problem (CDC, 2008). At-risk children are 10-50 times more likely to have hearing disorders (Meyer, 1999). Risk factors include a stay in the NICU longer than two days, several congenital syndromes, family history of hereditary childhood sensorineural hearing loss, craniofacial abnormalities, and certain congenital infections. While at-risk children have a higher chance of hearing disorders, around 50 percent of infants with permanent hearing loss do not have risk factors (U.S. Preventive Services Task Force, 2008). Thus, screening for hearing loss can have a significant impact. 1a.4 **Citations for Evidence of High Impact:** Center for Disease Control and Prevention. Early Hearing Detection & Intervention (EHDI) Program. http://www.cdc.gov/ncbddd/ehdi/. Updated July 2008. Meyer C. MD, et al. Neonatal Screening for Hearing Disorders in Infants at Risk: Incidence, Risk Factors, and Follow-Up. Pediatrics. October 1999. Vol. 104 No 4. Screening for Newborn Hearing Loss, Topic Page. July 2008. U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality, Rockville, MD. http://www.ahrq.gov/clinic/uspstf/uspsnbhr.htm	**1a** C☐ P☐ M☐ N☐
1b. Opportunity for Improvement	**1b**

1b.1 Benefits (improvements in quality) envisioned by use of this measure: Ideally, hearing should be screened and loss detected at three months of age with intervention (hearing aides) beginning no later than six months of age. Most hearing problems can be identified through a basic hearing screening, and, if detected and treated early, there are many options for treating hearing loss (The Nemours Foundation, 2006). This measure seeks to increase follow up of newborn hearing screening results in order to capitalize on the benefits of early detection and intervention.

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
The Center for Disease Control and Prevention (CDC) reported newborn hearing screening data from 45 states, two territories, and the District of Columbia based on a 2006 survey of state early hearing detection and intervention (EHDI) coordinators. Almost half (46.3%) of the infants born in 2006 who did not pass their final newborn hearing screen did not complete follow-up or were lost to documentation (LTF/LTD). Jurisdictions reported a range of one to 99 percent of infants documented as having received an audiologic evaluations. Of those reported as received diagnostic evaluations, only 47% could be documented as having been seen before 3 months of age. Furthermore, only 49% of infants with diagnosed hearing loss were documented as enrolled in Individuals With Disabilities Act (IDEA) Part C Early Intervention or as having received other early intervention services.

State EHDI coordinators report three factors affecting these high LTF/LTD rates: poor communication between EHDI personnel and families, lack of data management and tracking systems, and lack of facilities and trained personnel.

1b.3 Citations for data on performance gap:
Tharpe, Anne Marie. Closing the Gap in EHDI Follow-Up. ASHA Leader; 3/24/2009, Vol. 14 Issue 4, p12-14, 3p

The Foundation. KidsHealth. Hearing Evaluation in Children. http://kidshealth.org/PageManager.jsp?dn=KidsHealth&lic=1&article_set=22902&cat_id=192&. Updated 2006

1b.4 Summary of Data on disparities by population group:
Examination of newborn hearing screening experiences show that children among certain socioeconomic groups are at higher risk for becoming lost to follow-up. These groups include racial/ethnic minorities; teenaged mothers or those with less than a high-school education; families with public insurance; and families from rural areas (Brach et al, 2003; Liu et al, 2005; Sommers, 2005; National Center for Hearing Assessment and Management, 2006).

1b.5 Citations for data on Disparities:
Brach C, Lewit EM, VanLandeghem K, et al. Who's enrolled in the State Children's Health Insurance Program (SCHIP)? An overview of findings from the Child Health Insurance Research Initiative (CHIRI). Pediatrics. 2003;112(6 pt 2). Available at: www.pediatrics.org/cgi/content/full/112/6/SE1/e499

Liu CL, Zaslavsky AM, Ganz ML, Perrin J, Gortmaker S, McCormick MC. Continuity of health insurance coverage for children with special health care needs. Matern Child Health J. 2005;9(4):363–375

National Center for Hearing Assessment and Management. Loss to follow-up threatens success of newborn hearing screening programs. Available at: www.infanthearing.org/newsletter/backissues/si v5n3.pdf. Accessed April 12, 2006.

Sommers BD. From Medicaid to uninsured: drop-out among children in public insurance programs. Health Serv Res. 2005; 40(1):59–78

C☐ P☐ M☐ N☐

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired*

1c C☐ P☐

outcome. For outcomes, describe why it is relevant to the target population): Loss in hearing can substantially set a child back in healthy development. The first year of life is especially important for the acquisition of skills that greatly rely on a child's proper hearing (Meyer, 1999). Children with undetected or untreated hearing problems lag behind their peers in communication, cognition, reading, and social-emotional development (AAP; CDC, 2008).

Infants and children who are identified in the first 6 months of life and provided with immediate and appropriate intervention have significantly better outcomes than later-identified infants and children in vocabulary development, receptive and expressive language, syntax, speech production, and social-emotional development. Children enrolled in early intervention within the first year of life have also been shown to have language development within the normal range of development at 5 years of age (AAP).

1c.2-3. **Type of Evidence:** Evidence-based guideline, Expert opinion

1c.4 **Summary of Evidence** (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*):
There is strong guideline support for universal newborn hearing screening. The U.S. Preventive Services Task Force (USPSTF) recommends universal screening of all newborns by one month of age. Screening should be done in the hospital and, if not, by the primary care provider. The Joint Committee on Infant Hearing endorses the goal of universal detection of hearing loss in infants before 3 months of age, with appropriate intervention no later than 6 months of age. Universal detection of infant hearing loss requires universal screening of all infants (JCIH, 2007).

1c.5 **Rating of strength/quality of evidence** (*also provide narrative description of the rating and by whom*):
Good evidence

1c.6 **Method for rating evidence:** Expert consensus with evidence review

1c.7 **Summary of Controversy/Contradictory Evidence:** None

1c.8 **Citations for Evidence** (*other than guidelines*): Screening for Newborn Hearing Loss, Topic Page. July 2008. U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality, Rockville, MD.

American Academy of Pediatrics (AAP), Committee on Practice and Ambulatory Medicine. Recommendations for preventive pediatric health care. Pediatrics, 2000; 105:645-646.

Joint Committee on Infant Hearing. Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Pediatrics Vol. 120 No. 4 October 2007, pp. 898-921

Meyer C. MD, et al. Neonatal Screening for Hearing Disorders in Infants at Risk: Incidence, Risk Factors, and Follow-Up. Pediatrics. October 1999. Vol. 104 No 4.

1c.9 **Quote the Specific guideline recommendation** (*including guideline number and/or page number*):
U.S. Preventive Services Task Force (2008)
The USPSTF recommends that hospital or PCP should provide 1- or 2- validated protocol (includes otoacoustic emissions (OAEs) followed by auditory brainstem response(ABR) in those who failed the first test) in all newborns by one month.
Infants who do not pass the newborn screening should undergo audiologic and medical evaluation before 3 month.
Grade: B recommendation
ICSI (2007)
The work group recommend OAE and ABR should be provided for all newborns by 1 mongh.
Level II
Joint Committee on Infant Hearing (2007)
The Joint Committee on Infant Hearing recommends that hospital and PCP should provide physiologic measure for all newborns by 1 month. The tools include OAE and ABR. PCP should review every infant's medical and family history for the presence of risk indicators that require monitoring for delayed-onset or

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progressive hearing loss.
Any infant who demonstrates delayed auditory and/or communication skills development, should receive an audiological evaluation. By 3 months, all infants who do not pass the initial hearing screening and the subsequent rescreening should have appropriate audiological and medical evaluations . Children at risk of hearing loss should have an audiological evaluation at least once by 24 to 30 months.
Consensus and Guideline based.
AAP(2000)
The AAP recommends that hospital and the medical home should provide physiologic measure for all infants. Regular surveillance of developmental milestones, auditory skills, parental concerns, and middle-ear status should be performed; refer if positive history/ symptoms.
Consensus and Guideline based.
Bright Futures(2008)
Verify or catch up at 1 week, 1 month or 2 months. Refer for diagnostic audiologic assessment if positive history or symptom in 4 months and 6 months.
Consensus and Guideline based.

1c.10 Clinical Practice Guideline Citation: Screening for Newborn Hearing Loss, Topic Page. July 2008. U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality, Rockville, MD.
Institute for Clinical Systems Improvement. Preventive Services for Children and Adolescents Thirteenth Edition. October 2007
Joint Committee on Infant Hearing. Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Pediatrics 2007;120;898-921.
* Adopted by: Alexander Graham Bell Association for the Deaf and Hard of Hearing, the American Academy of Audiology, the American Academy of Otolaryngology-Head and Neck Surgery, the AAP, the American Speech-Language- Hearing Association, the Council on Education of the Deaf, and the Directors of Speech and Hearing Programs in State Health and Welfare Agencies.
American Academy of Pediatrics (AAP), Committee on Practice and Ambulatory Medicine. Recommendations for preventive pediatric health care. Pediatrics, 2000; 105:645-646.
American Academy of Pediatrics(AAP), Task Force on Newborn and Infant Hearing. Newborn and infant hearing loss: detection and intervention. Pediatrics. 1999;103:527–530
American Academy of Family Physicians (AAFP). Summary of recommendations for clinical preventive services. Revision 6.4. Leawood (KS): American Academy of Family Physicians (AAFP); 2007
Hagan, JF, Shaw JS, Duncan PM, eds. 2008. Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents, Third Edition. Elk Grove, IL: American Academy of Pediatrics
1c.11 National Guideline Clearinghouse or other URL: Universal screening for hearing loss in newborns: U.S. Preventive Services Task Force recommendation statement.
http://www.guideline.gov/content.aspx?id=12640&search=hearing+screening

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom***):**
USPSTF-based

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*:
USPSTF-based

1c.14 Rationale for using this guideline over others:
NCQA convened a multistakeholder panel of experts to review evidence and guidelines for child health care. The Child Health Measurement Advisory Panel reviewed these guidelines together with the health importance and field test results of this measure. The MAP concluded that the health importance, evidence and feasibility supports this measure.

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**

2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 Do you have a web page where current detailed measure specifications can be obtained? **S.2 If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*)**:** Children who had documentation in the medical record of a review conducted by their 3-month birthday of their newborn hearing screening results. Note: The numerator in this measure refers only to the look back period for chart review rather than the time at which screening should be performed. **2a.2 Numerator Time Window** (*The time period in which cases are eligible for inclusion in the numerator*)**:** 6 months **2a.3 Numerator Details** (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*)**:** Documentation must include a note indicating the date and the following. • Evidence that newborn hearing screening results were reviewed by the practice by the child´s 3-month birthday	
2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured*)**:** Children with a visit who turned 6 months old in the measurement year **2a.5 Target population gender:** Female, Male **2a.6 Target population age range:** 0 – 6 months **2a.7 Denominator Time Window** (*The time period in which cases are eligible for inclusion in the denominator*)**:** 6 months **2a.8 Denominator Details** (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions*)**:** Children who turned 6 months of age between January 1 of the measurement year and December 31 of the measurement year and who had documentation of a face-to-face visit between the clinician and the child that predates the child's birthday by at least 6 months.	
2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population*)**:** None **2a.10 Denominator Exclusion Details** (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions*)**:** NA	
2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions*)**:** None	**2a-specs** **C**☐ **P**☐ **M**☐ **N**☐
2a.12-13 Risk Adjustment Type: No risk adjustment necessary **2a.14 Risk Adjustment Methodology/Variables** (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method*)**:**	

NA

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Higher score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
Step 1: Determine the denominator
Children who turned the requisite age in the measurement year, AND
Who had a visit within the past 6 months of the child´s birthday
Step 2: Determine the numerator
Children who had documentation in the medical record of the screening or service during the measurement year.

2a.22 Describe the method for discriminating performance *(e.g., significance testing)***:**
Comparison of means and percentiles; analysis of variance against established benchmarks; if sample size is >400, we would use an analysis of variance.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
For this physician-level measure, we anticipate the entire population will be used in the denominator. If a sample is used, a random sample is ideal. NCQA's work has indicated that a sample size of 30-50 patients would be necessary for a typical practice size of 2000 patients.

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Electronic administrative data/claims, Paper medical record/flow-sheet

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
Medical Record

2a.26-28 Data source/data collection instrument reference web page URL or attachment:

2a.29-31 Data dictionary/code table web page URL or attachment:

2a.32-35 Level of Measurement/Analysis *(Check the level(s) for which the measure is specified and tested)*
Clinician : Group/Practice, Clinician : Individual, Clinician : Team, Population : National, Population : Regional/network

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Ambulatory Care : Clinic, Ambulatory Care : Hospital Outpatient, Ambulatory Care : Office

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: PA/NP/Advanced Practice Nurse, Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)***:** NCQA received data from 18 physician practices who submitted 10 records per measure (total 180 records per measure)

2b.2 Analytic Method *(type of reliability & rationale, method for testing)***:**
We calculated 95% confidence intervals, which speak to the precision of the rates obtained from field testing.

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)***:**
Rate (Upper Confidence Interval, Lower Confidence Interval):
0.878 (0.83, 0.93)

2b
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N☐

2c. Validity testing

2c.1 **Data/sample** *(description of data/sample and size)*: NCQA received data from 18 physician practices who submitted 10 records per measure (total 180 records per measure)

2c.2 **Analytic Method** *(type of validity & rationale, method for testing)*:
NCQA tested the measure for face validity using a panel of stakeholders with specific expertise in measurement and child health care. This panel included representatives from key stakeholder groups, including pediatricians, family physicians, health plans, state Medicaid agencies and researchers. Experts reviewed the results of the field test and assessed whether the results were consistent with expectations, whether the measure represented quality care, and whether we were measuring the most important aspect of care in this area.

2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
This measure was deemed valid by the expert panel. In addition, this measure does not utilize administrative data sources; data recorded in the chart is considered the gold standard.

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2d. Exclusions Justified

2d.1 **Summary of Evidence supporting exclusion(s):**
No Exclusions

2d.2 **Citations for Evidence:**
NA

2d.3 **Data/sample** *(description of data/sample and size)*: NA

2d.4 **Analytic Method** *(type analysis & rationale)*:
NA

2d.5 **Testing Results** *(e.g., frequency, variability, sensitivity analyses)*:
NA

2d
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P☐
M☐
N☐
NA☐

2e. Risk Adjustment for Outcomes/ Resource Use Measures

2e.1 **Data/sample** *(description of data/sample and size)*: NA

2e.2 **Analytic Method** *(type of risk adjustment, analysis, & rationale)*:
NA

2e.3 **Testing Results** *(risk model performance metrics)*:
NA

2e.4 **If outcome or resource use measure is not risk adjusted, provide rationale:** The measure assesses prevention and wellness in a general population; risk adjustment is not indicated.

2e
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NA☐

2f. Identification of Meaningful Differences in Performance

2f.1 **Data/sample from Testing or Current Use** *(description of data/sample and size)*: NCQA received data from 18 physician practices who submitted 10 records per measure (total 180 records per measure)

2f.2 **Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*:
Comparison of means and percentiles; analysis of variance against established benchmarks; if sample size is >400, we would use an analysis of variance

2f.3 **Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*:

2f
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Elig Population: 180 Performance rate for results and proper follow up documented: 80.0	
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: NCQA received data from 18 physician practices who submitted 10 records per measure (total 180 records per measure) **2g.2 Analytic Method** *(type of analysis & rationale)*: This measure is chart review only; no other sources were identified by the expert panel; this measure does not utilize administrative data. **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*: NA	**2g** C☐ P☐ M☐ N☐ NA☐
2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: The measure is not stratified to detect disparities. **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:** NA	**2h** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	***2*** C☐ P☐ M☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** Not in use but testing completed **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*): This measure is not currently publicly reported. NCQA is exploring the feasibility of adding this measure and its related measures into a physician-level program and/or the HEDIS® measurement set as appropriate. **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** This measure is not currently used in QI. NCQA is exploring the feasibility of adding this measure and its related measures into a physician-level program and/or the HEDIS® measurement set as appropriate. NCQA anticipates that after we release these measures, they will become widely used, as all our measures do. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) **3a.4 Data/sample** *(description of data/sample and size)*: Expert panel, other stakeholders, and 19 physician field test participants **3a.5 Methods** *(e.g., focus group, survey, QI project)*: NCQA vetted the measures with its expert panel. In addition, throughout the development process, NCQA vetted the measure concepts and specifications with other stakeholder groups, including the National	**3a** C☐ P☐ M☐ N☐

Association of State Medicaid Directors, NCQA's Health Plan Advisory Council, NCQA's Committee on Performance Measurement, and the American Academy of Pediatrician's Quality Improvement Innovation Network. After field testing, NCQA also conducted a debrief call with field test participants. In the form of a group interview, NCQA systematically sought feedback on whether the measures were understandable, feasible, important, and had face validity. 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)*: NCQA received feedback that the measure is understandable, feasible, important and valid.	
3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:**	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 **Are the measure specifications harmonized? If not, why?**	**3b** C☐ P☐ M☐ N☐ NA☐
3c. Distinctive or Additive Value 3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** 5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:** NA	**3c** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	**Eval Rating**
4a. Data Generated as a Byproduct of Care Processes 4a.1-2 **How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** C☐ P☐ M☐ N☐
4b. Electronic Sources 4b.1 **Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No 4b.2 **If not, specify the near-term path to achieve electronic capture by most providers.**	**4b** C☐ P☐ M☐ N☐

NCQA plans to eventually adapt this measure for use in electronic health records.	
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** C☐ P☐ M☐ N☐ NA☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** During the measure development process the Child Health MAP and measure development team worked with NCQA's certified auditors and audit department to ensure that the measure specifications were clear and auditable. The denominator, numerator and any exclusions are concisely specified and align with our audit standards.	**4d** C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Based on field test results, we have specified the measure to assess whether screening was documented in the medical record and whether results were present in the medical record. Our field test results showed that these data elements are available in the medical record. In addition, our field test participants noted that many were able to program these requirements into their electronic health record systems, and several implemented point-of-service physician reminders for this measure. **4e.2 Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** Collecting measures from medical charts is time-consuming and can be burdensome. Adapting this measure in electronic health records may relieve some of this burden. **4e.3 Evidence for costs:** Based on field test participant feedback and other stakeholder input **4e.4 Business case documentation:**	**4e** C☐ P☐ M☐ N☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** C☐ P☐ M☐ N☐
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited** ☐
Steering Committee: Do you recommend for endorsement? **Comments:**	Y☐ N☐ A☐
CONTACT INFORMATION	

Co.1 Measure Steward (Intellectual Property Owner)
Co.1 Organization
National Committee for Qualtiy Assurance, 1100 13th Street NW, Suite 1000, Washington, District Of Columbia, 20005

Co.2 Point of Contact
Sepheen, Byron, MHS, byron@ncqa.org, 202-955-3573-

Measure Developer If different from Measure Steward
Co.3 Organization
National Committee for Qualtiy Assurance, 1100 13th Street NW, Suite 1000, Washington, District Of Columbia, 20005

Co.4 Point of Contact
Sepheen, Byron, MHS, byron@ncqa.org, 202-955-3573-

Co.5 Submitter If different from Measure Steward POC
Sepheen, Byron, MHS, byron@ncqa.org, 202-955-3573-, National Committee for Qualtiy Assurance

Co.6 Additional organizations that sponsored/participated in measure development

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
Child Health Measurement Advisory Panel:
Jeanne Alicandro
Barbara Dailey
Denise Dougherty, PhD
Ted Ganiats, MD
Foster Gesten, MD
Nikki Highsmith, MPA
Charlie Homer, MD, MPH
Jeff Kamil, MD
Elizabeth Siteman
Mary McIntyre, MD, MPH
Virginia Moyer, MD, MPH, FAAP
Lee Partridge
Xavier Sevilla, MD, FAAP
Michael Siegal, MD
Janet Sullivan, MD

Ad.2 If adapted, provide name of original measure: NA
Ad.3-5 If adapted, provide original specifications URL or attachment

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released:
Ad.7 Month and Year of most recent revision:
Ad.8 What is your frequency for review/update of this measure?
Ad.9 When is the next scheduled review/update for this measure?

Ad.10 Copyright statement/disclaimers: © 2009 by the National Committee for Quality Assurance
1100 13th Street, NW, Suite 1000

Ad.11 -13 Additional Information web page URL or attachment:

Date of Submission (*MM/DD/YY*)**:** 04/13/2011