



# Brazilian Journal of OTORHINOLARYNGOLOGY

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## ORIGINAL ARTICLE

### Universal newborn hearing screening: knowledge of pediatricians and neonatologists in the city of Jundiaí, São Paulo, Brazil<sup>☆,☆☆</sup>



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Received 29 August 2013; accepted 9 March 2014

Available online 13 August 2014

#### KEYWORDS

Hearing;  
Questionnaires;  
Spontaneous otoacoustic emissions;  
Neonatal screening

#### Abstract

**Introduction:** Hearing loss has severe emotional, psychological, and social consequences. The early identification of hearing impairment is crucial.

**Objective:** To evaluate and quantify the knowledge of neonatologists, pediatricians, and residents in pediatrics regarding detection, risk factors, early diagnosis, and referral for rehabilitation of patients with neonatal hearing loss in Jundiaí, state of São Paulo, Brazil.

**Methods:** This was a cross-sectional contemporary cohort study including 47 physicians from three hospitals and a questionnaire with 15 items.

**Results:** Most of the respondents (83%) had received information about hearing loss in their medical courses, but had no knowledge of techniques for hearing evaluation, and degrees and types of loss. All physicians agreed that in the first six months of life, it is possible to evaluate hearing function and that it is the physician's responsibility to assess the newborn. Regarding the age that the child can receive auditory rehabilitation, the end of the first year and the second year of life predominates.

**Conclusion:** Most respondents know the risk factors for the detection of neonatal hearing impairment, know how to perform procedures, and recognize the importance of diagnosis of hearing loss and the need to refer suspected cases, but most do not know the techniques used to assess hearing in newborns.

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<sup>☆☆</sup> Please cite this article as: de Campos AC, Shirane HY, Takemoto PV, Lourenço EA. Universal newborn hearing screening: knowledge of pediatricians and neonatologists in the city of Jundiaí, São Paulo, Brazil. Braz J Otorhinolaryngol. 2014;80:379–85.

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**PALAVRAS-CHAVE**

Audição;  
Questionários;  
Emissões otoacústicas  
espontâneas;  
Triagem neonatal

**Triagem auditiva neonatal universal: conhecimento dos pediatras e neonatologistas em Jundiaí, São Paulo, Brasil****Resumo**

**Introdução:** A deficiência auditiva acarreta graves consequências emocionais, psicológicas e sociais, sendo imprescindível a identificação precoce de alterações auditivas.

**Objetivo:** Avaliar e quantificar o conhecimento de médicos neonatologistas, pediatras e residentes em Pediatria, sobre detecção, fatores de risco, diagnóstico precoce e encaminhamento para reabilitação dos pacientes acometidos por deficiência auditiva neonatal no município de Jundiaí, SP.

**Método:** Estudo de coorte contemporânea com corte transversal, incluindo 47 médicos de três instituições hospitalares, com aplicação de um questionário de 15 perguntas.

**Resultados:** Grande parte dos entrevistados (83%) teve informações sobre deficiência auditiva em seus cursos médicos, em sua maioria desconheciam técnicas de avaliação auditiva na infância, graus e tipos de perda. Todos relataram que nos primeiros seis meses de vida já é possível avaliar a audição, sendo dever do médico se preocupar com sua comunicação. Com relação à idade em que a criança pode receber a reabilitação auditiva, predominaram o final do primeiro e o segundo ano de vida.

**Conclusão:** A maioria dos entrevistados conhece os fatores de risco para a detecção neonatal da deficiência auditiva, realiza procedimentos, reconhece a importância do diagnóstico da deficiência auditiva e a necessidade de efetuar encaminhamento dos casos suspeitos, porém desconhece técnicas de avaliação da audição em neonatos.

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**Introduction**

Hearing loss has severe consequences for the development of language and communication in children. In addition to emotional, psychological, and social problems, it also affects their families.<sup>1</sup> For this reason, the early identification of hearing impairment is essential for early adaptation of hearing aids and auditory stimulation, allowing appropriate development and minimizing the socioeconomic impact of this type of disability. The implementation of the universal newborn hearing screening (UNHS) program allows rapid audiological screening of children for a subsequent further assessment, depending on the need.

In accordance with Resolution 01/99 of the Brazilian Committee on Hearing Loss in Childhood, the UNHS aims to evaluate all newborns,<sup>2</sup> and is considered effective if at least 95% of all newborns are evaluated. If there is a failure in the implementation of UNHS, the recommendation is to prioritize newborns at greatest risk of deafness and gradually expand the service to all newborns. The term "screening" refers to the process of applying certain fast and simple measures to a large number of individuals that will identify high probability of disease in the tested function.<sup>3</sup> It is not a diagnostic procedure, but rather a method to identify, among asymptomatic individuals, those more likely of presenting the studied disease.<sup>3</sup>

Thus, it is suggested that UNHS be performed through objective measures (otoacoustic emissions [OAEs]), which can be complemented by the evoked auditory brainstem response (ABR) in the first month of life, after which the diagnosis must be made by three months of age and intervention must be started at six months.<sup>3</sup>

UNHS is mandatory in accordance with municipal laws in several cities in Brazil,<sup>4,5</sup> and it is currently required by

Federal Law N° 12,303 of August 2, 2010.<sup>6</sup> The law requires that all hospitals and maternity units perform the examination free of charge during the first days of the newborn's life.

The incidence of bilateral hearing loss in healthy newborns is estimated at one to three cases per thousand live births, and from 2% to 4% of children in intensive care units.<sup>7</sup> It is estimated that 7–12% of all newborns have at least one risk factor for hearing impairment.<sup>8</sup>

In recent years, early detection and treatment of hearing loss have gained great importance in pediatric and otorhinolaryngology practice.<sup>9</sup> Pediatricians and neonatologists play a key role in interdisciplinary teams that work to prevent hearing loss, as the first professionals who come into contact with newborns. Due to this fact, their evaluation and knowledge about the risk factors for neonatal hearing loss are of utmost importance for the child's audiological follow-up. Teaching (university) hospitals are constantly engaged in the promotion of the theory, research, and practice of interdisciplinarity, but this reality does not always apply to all municipal hospitals.

Therefore, this study aimed to evaluate and quantify, through the use of a questionnaire (Fig. 1), the knowledge of neonatologists, pediatricians, and pediatric residents on risk factors, early diagnosis, and rehabilitation of newborns with hearing impairment in the city of Jundiaí, state of São Paulo, Brazil.

**Materials and method**

The study was conducted in three hospitals located in the city of Jundiaí, and the allocation of respondents was randomly performed.

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