

Overview of newborn hearing screening activities in Latin America

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ABSTRACT

Objective. *Ascertain the status of early hearing detection and intervention services in Latin America.*

Methods. *Between June and November 2007, Gallaudet University, in collaboration with the U.S. Centers for Disease Control and Prevention Early Hearing Detection and Intervention Diversity Committee, disseminated a survey to 11 Latin American countries. It included questions about newborn hearing screening (NHS) procedures, the availability of intervention services for infants with hearing loss, and challenges in identifying infants with hearing loss. In addition, a literature review was conducted to help identify the status of NHS efforts in Latin America.*

Results. *Six countries (Chile, Costa Rica, Guatemala, Mexico, Panama, and Uruguay) and one U.S. territory (Puerto Rico) responded to the survey. Responses indicated that efforts to identify infants with hearing loss vary within and across countries in Latin America. In some countries, activities have been implemented at a national level; in others, activities have been implemented at a single hospital or region within a country. Common barriers to implementation of NHS programs include a lack of funding, screening and diagnostic equipment, public awareness, and personnel qualified to work with infants and young children.*

Conclusions. *In spite of several barriers, NHS programs have been implemented in at least some facilities and regions in Latin America. Additional efforts are needed to expand NHS activities in Latin America.*

Key words

Hearing loss; deafness; mass screening; Latin America.

Congenital hearing loss is a common condition, affecting between 2 and 3 individuals per 1 000 live births (1). Children with undetected hearing loss can

experience delays in their speech and language development (2–4). Several countries throughout the world have established newborn hearing screening (NHS) programs to help ensure that infants with hearing loss are promptly identified and receive intervention services. While efforts in the United States of America and Europe have been well documented, information about activities to establish NHS programs in Latin America is limited.

Latin America is the region of the Americas where Spanish and Portuguese are primarily spoken. This region

includes Mexico, most of Central America (Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, and Panama), and South America (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela), plus Cuba, Dominican Republic, and Puerto Rico. Latin American countries vary widely in their geography, economics, population demographics, and available health care services (Table 1). The World Bank categorizes countries' economies based on gross national income (GNI) per capita (i.e., individual income) (5). Most Latin American countries are

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TABLE 1. Demographics of Latin American Countries

Country	Population mid-2008 (millions) ^a	Births per 1 000 population ^a	Annual number of births (2007) ^b	Institutional births (2000–2007) (%) ^b	GNI PPP ^c per capita (US\$) 2007 ^a	Infant mortality rate per 1 000 live births ^a	Life expectancy at birth (years) ^a
Cuba	11.2	10	118,000	N/D	N/D	5.3	77
Dominican Republic	9.9	24	231,000	95.0	5 050	32	72
Puerto Rico	4.0	12	50 687 (2005) ^d	N/D	N/D	9.2	78
Costa Rica	4.5	16	80 000	94.0	8 340	9.7	78
El Salvador	7.2	24	158 000	69.0	4 840	24	71
Guatemala	13.7	34	449 000	42.0	4 120	34	69
Honduras	7.3	27	200 000	67.0	3 160	23	72
Nicaragua	5.7	26	140 000	66.0	2 080	29	71
Panama	3.4	20	70 000	92.0	8 340	15	75
Argentina	39.7	19	693 000	99.0	12 990	13.3	75
Bolivia	10.0	29	263 000	57.0	4 140	51	65
Brazil	195.1	20	3 706 000	97.0	9 370	24	72
Chile	16.8	14	250 000	100	12 590	8.8	78
Colombia	44.4	20	876 000	92.0	6 640	19	72
Ecuador	13.8	26	283 000	74.0	7 040	25	75
Paraguay	6.2	27	153 000	74.0	4 380	36	71
Peru	27.9	21	584 000	70.0	7 240	24	71
Uruguay	3.3	14	51 000	N/D	11 040	10.5	76
Venezuela	27.9	25	N/D	N/D	11 920	16.5	73
Mexico	107.7	20	2 088 000	86.0	12 580	19	75

Note: N/D: no data, GNI: gross national income, PPP: purchasing power parity.

^a World Bank, Population Reference Bureau (2008). 2008 World Population data sheet. http://www.prb.org/pdf08/08WPDS_Eng.pdf.

^b United Nations Children's Fund. http://www.unicef.org/statistics/index_countrystats.html.

^c GNI converted to international dollars using PPP rates.

^d Department of Health, San Juan, Puerto Rico. <http://tendenciaspr.uprrp.edu/salud/estadisticasvital05/tabla10.pdf>.

considered middle income (annual income U.S. \$936–\$3 705) but there is variation, with GNI ranging from U.S. \$2 080 in Nicaragua to U.S. \$12 590 in Chile (6).

The number of births in Latin America varies by country. Brazil and Mexico have the highest numbers of annual births, with approximately 3.1 million and 2.1 million, respectively (7). Most births in Latin America occur in health care institutions, with the exception of Guatemala where only 42.0% of the births occur in health care facilities (7). Guatemala also has the highest birth rate (proportion of births to the total population in a place at a given time) of 34 per 1 000 population (7). Infant mortality rates in Latin America range from less than 10 per 1 000 births in Cuba, Puerto Rico, Costa Rica, and Chile to 50 per 1 000 births in Bolivia (6). The availability and completeness of NHS programs also differ among and within countries; as a result, hearing screenings may be offered only in a particular hospital or region of a country.

Olusanya and colleagues have published a number of articles related to NHS in developing countries (8–19). On the basis of the United Nations Children's Fund birth rates and a prevalence of 2.6 per 1 000, researchers have calculated that 855 babies with hearing loss are

born every day in developing countries, with very few having any prospect of receiving a hearing screening (18). Despite the large number of infants calculated to be born with a hearing loss, several barriers have been identified that delay or make it extremely challenging to implement NHS programs in developing countries. These barriers include limited funding, inadequate support services, low public awareness, uncertainty about the commitment of health care practitioners, and a shortage of qualified personnel, such as otolaryngologists, audiologists, and speech pathologists, who are needed to provide screening, diagnostic, and intervention services. This shortage of personnel is highlighted by estimates that in some regions there is less than 1 otolaryngologist per 1 million children (13). In spite of these barriers, alternative strategies have been suggested and, in some cases, implemented. For example, in Nigeria and South Africa, hearing screening is done as part of early childhood immunization programs (15).

The World Health Organization (WHO) has also published audiological information, such as the WHO Training Resource for Primary Ear and Hearing Care (20) and the Guideline for Hearing Aids and Services for Developing Coun-

tries (21). In 2006, WHO and World Wide Hearing Care for Developing Countries agreed to work together to encourage and enable the provision of affordable hearing aids and services on a large scale, especially in developing countries and underserved communities. The Audiology Committee of the International Association of Logopedics and Phoniatrics has also joined this initiative (22).

Although some countries have taken steps toward introducing NHS, evidence from the literature suggests that hearing loss is still considered a low-priority health condition in most parts of Latin America. As a result, material and human resources are limited; audiology services are scarce, while hearing technology continues to be costly by regional standards (23, 24). This study therefore seeks to ascertain the current status of hearing screening and follow-up services in Latin America, which has an estimated 11 million births per year (25).

METHODS

In an effort to learn more about the status of NHS in Latin America, a collaborative project was conducted by the U.S.-based Gallaudet University, the world's only liberal arts university dedicated to

providing higher education to deaf and hard-of-hearing students, and the U.S. Centers for Disease Control and Prevention Early Hearing Detection and Intervention Diversity Committee. This project involved surveying Latin American countries about what activities were occurring related to NHS. The first stage of the project involved a literature review. The search was limited to articles published after 1999. Searches in PubMed, LILACS, and SciELO were done in English, Spanish, and Portuguese; searches in Communication Sciences and Disorders Dome (ComDisDome) and Google Scholar were done in English. In addition, unpublished reports, conference presentations, newsletters, articles on the Internet, and websites of relevant organizations were sought. These searches also helped identify key contacts in each country.

The second stage involved developing a survey tool to ascertain what NHS-related activities were occurring in each country. This survey was based on instruments previously used by the U.S.-based Directors of Speech and Hearing Programs in state health and welfare agencies (26) and the Italian-based International Working Group on Childhood Hearing (27). The resulting survey included questions about the existence of a universal or high-risk NHS program, NHS-related legislation, responsibility for ensuring that infants receive follow-up diagnostic and intervention services, availability of services, and barriers to screening and early detection. Respondents were also asked if the answers applied to what was occurring across the entire country or only in a hospital(s) or region(s). When at least some infants were being screened for hearing loss, respondents were asked to provide the most recent data available on how many infants were screened, received follow-up testing, and were identified with hearing loss. The survey was translated into Spanish and sent to Spanish-speaking colleagues in Guatemala, Mexico, and Puerto Rico who are involved in NHS activities to help ensure that the questions were understandable and appropriate. Feedback related to rephrasing questions and other factors was incorporated into the final version of the survey.

With information from the literature review and other resources, a list was generated of key contacts known to be working on NHS-related activities. This list included contacts for 11 of the 20

Latin American countries. A copy of the survey (in Spanish) was sent by email between June and November 2007 to at least one contact in each of the 11 Latin American countries that were surveyed (Argentina, Brazil, Chile, Costa Rica, Cuba, Guatemala, Mexico, Panama, Peru, Puerto Rico, and Uruguay). Because a Portuguese version of the survey could not be validated, the survey was sent in English and Spanish to the contacts identified in Brazil. A reminder email was sent several weeks after the initial request to contacts who did not respond. Respondents included physicians, audiologists, and other health care professionals with experience working with children who have hearing loss. Some respondents were not able to respond to all the survey questions and the level of detail in the responses varied among countries.

During stage three, contacts in each of the 11 surveyed countries were invited to participate in a teleconference in July 2008. The purpose of this teleconference was to discuss findings from the survey, including barriers and planned next steps, and to help further communication across Latin American countries related to NHS.

RESULTS

Findings from the literature review

Argentina and Brazil, which did not participate in the survey, have been addressing NHS since the 1990s. Argentina started investigating hearing screening in 1997 through a pilot universal NHS program in one hospital (28). A group called *Consenso Argentino de Detección Temprana de la Hipoacusia* was created in 2005 to promote early identification and intervention for children with hearing loss and to assist with implementation of NHS legislation that was passed in 2001 (29). This law stipulates that all newborns have the right to be screened for hearing loss and to receive timely and appropriate diagnostic evaluation and treatment when needed. Since the implementation of this law, several NHS programs have been put into operation in different provinces around the country.

Brazil has one of the largest and oldest NHS programs in Latin America, with more than 237 screening sites across 22 of the 27 Brazilian states (approximately 4% of Brazilian maternity hospitals) (30).

The NHS movement began within some private hospitals, and in October 1998 a committee was created: *Comitê Brasileiro sobre Perdas Auditivas na Infância*. In November 1999, this committee finalized the first consensus report on NHS (31). Brazil also has a group called *Grupo de Apoio a Triagem Auditiva Neonatal Universal*, which has promoted the benefits of NHS for more than 10 years (32).

In Colombia, a law passed in 2005 regarding the rights of people who are deaf or hard of hearing refers to NHS (33), even though NHS has not yet been implemented. Between 2002 and 2004, the *Centro de Investigación e Información en Deficiencias Auditivas*, an organization that offers audiological services for families and infants with hearing loss, performed hearing screenings on premature babies in four hospitals in the capital of Bogota to educate health providers about the importance of NHS (34). Challenges to establishing NHS in Colombia include a lack of screening equipment in hospitals, professionals not being aware of the existence of NHS programs, and a lack of financial resources necessary to implement NHS programs (35, 36).

In Cuba, targeted NHS was implemented in 1983. Children from birth to age 3 years with an identified risk factor are targeted for referral to territorial, hospital-based reference centers for early detection, diagnostic, and intervention services. There are 17 of these reference centers across the country; 4 in Havana and 1 in each of the other 13 provinces. These centers receive referrals from maternity units, pediatric hospitals, intensive care units, family doctors, and parents who are concerned about their child's hearing or language abilities. This NHS program reportedly has had a positive impact on health by significantly lowering the age of detection in these high-risk groups (37).

Findings from country survey

Contacts in 7 of the 11 surveyed Latin American countries responded: Chile, Costa Rica, Guatemala, Mexico, Panama, Puerto Rico (U.S. territory), and Uruguay. A summary of the responses by country, along with a comparison table (Table 2), is provided below.

Chile. Since July 2005, Chilean law has required targeted hearing screening

TABLE 2. Information collected about NHS activities in Latin American and Caribbean countries, 2007

Country	Targeted NHS	Universal NHS	NHS campaign	NHS legislation	Website	Screening equipment	Services available	Services funded by	Database
Chile	Yes, all birthing hospitals	Yes, some hospitals	Yes	Yes	No	OAE, ABR	HA, SLT, CI	Government (some cases)	Yes
Costa Rica	Yes, some hospitals	In process	No	No	www.adiscr.com	OAE	HA, CI	Government	No
Guatemala	Yes, one hospital	No	No	No	No	OAE	FE (one institution) HA, CI	Government (some cases)	No
Mexico	Yes, some hospitals	Yes, some hospitals	Yes	Yes	No	OAE, ABR	HA, SLT, GS, CI	Government, nonprofit organizations, family	Yes
Panama	Yes, some hospitals	No	No	No	No	OAE, ABR	HA, SLT, GS, CI, FE	Government, nonprofit organizations, family	No
Puerto Rico ^a	No	Yes	No	Yes	http://www.salud.gov.pr/canu/	OAE, ABR	HA, SLT, GS, CI, FE	Government, family, medical plans	Yes
Uruguay	Yes, one hospital	Yes, some birthing hospitals	Yes	No	No	OAE, ABR	HA, SLT, CI	Government, family	No

Note: NHS: newborn hearing screening, OAE: otoacoustic emissions, ABR: auditory brainstem response, HA: hearing aids, SLT: speech–language therapy, CI: cochlear implants, FE: family education, GS: genetic services.

^a U.S. territory.

using otoacoustic emissions (OAE) and auditory brainstem response (ABR) technology for all premature newborns born before 32 weeks and weighing less than 1 500 g who are discharged from the 28 facilities with a neonatal intensive care unit. The law also requires diagnostic and intervention services, the provision of bilateral hearing aids, and the reporting of results to a national database maintained by the Ministry of Health (38). In addition, universal NHS pilot programs have been initiated in a few public and private birthing hospitals (39). In these facilities, if the baby does not pass the hearing screening, the hospital refers that baby for a diagnostic evaluation with a *fonoaudiólogo* (a professional with expertise in speech pathology and audiology). If the baby is diagnosed with hearing loss, the national social security system, which covers 70.0% to 75.0% of the population, will pay for hearing aids. Speech and language therapy and cochlear implants (small electronic devices that are surgically implanted in the inner ear and send sound directly to the brain) are also available for children with hearing loss. A public campaign was conducted in 2005 to promote the NHS. Although the program has existed for several years, a number of barriers remain, such as lack of financial support, equipment, and qualified staff—in particular the

auditory–verbal rehabilitation therapists needed to work with children with cochlear implants. There are reportedly plans to expand the NHS program to include all premature babies and eventually all newborns. To accomplish this task, fonoaudiólogos and special educators are being trained to provide needed services. Also, several graduate schools are planning to start master’s level programs in audiology.

Costa Rica. Since 2004, a few centers have been providing NHS services using OAE to screen some high-risk children. However, intervention services reportedly are often delayed and there are no publically available auditory–verbal or oral rehabilitation programs. There is also a lack of audiologists, and those who practice in Costa Rica often do not have experience working with young children.

In cooperation with the Costa Rican Social Security Administration, the Ministry of Health, the U.S.-based National Center for Hearing Assessment and Management, and Fontbonne University, Costa Rica is working toward implementing an NHS program called *Detección e Intervención Temprana de la Sordera*. The primary goal is to establish universal NHS in all hospitals and birthing centers; a pilot NHS program was being planned for five birthing hospitals in the city of San Jose. In 2007, a nongovernmental organi-

zation, *Asociación para la Detección e Intervención de la Sordera*, was created to assist in planning and developing the program (40). This organization is identifying funds to create an educational center specializing in auditory–verbal or oral communication and training and to provide scholarships for students seeking a doctor of audiology degree or a master’s degree in deaf education. In 2008, the proposal for NHS was officially accepted by the Costa Rican Social Security Administration, and at the time of this survey they were in the budget approval phase. It can reportedly take several months after budget approval before funds are available to purchase hearing screening equipment.

Guatemala. Guatemala does not have legislation requiring NHS. In 2004, high-risk targeted NHS was implemented in one hospital in the capital city, and a second site was established in 2008. These NHS programs were started with donated OAE equipment and there were plans to expand as additional (donated) equipment became available. In 2008, the OAE equipment in the first hospital broke, and as of June 2009 it had not been repaired, which left only one hospital performing hearing screenings.

In 2005, the most recent data available, the program reported screening 890 children, including children up to 6 years of age. The screening is offered at no charge

to all children who come for vaccination and development and growth assessments. Children who do not pass the screening are referred to the Hospital Rodolfo Robles, where they receive ABR and auditory steady-state response tests. However, some children who do not pass the initial screening do not show up for follow-up appointments; furthermore, education services for families of children diagnosed with hearing loss are usually available only in the capital city of Guatemala City (41). The age of identification for hearing loss averages 3 years across the country. Hearing aids are available to children less than 5 years of age who have access to social security services and to children whose families can afford to purchase them. No insurance in Guatemala covers hearing aids. Cochlear implants are not common, as few families have the economic resources to pay the surgical and other associated costs.

Mexico. The Hospital General de México (HGM) in Mexico City implemented a targeted NHS program in August 2003. In February 2005, a national law was passed requiring hearing screening for all newborns and audiological evaluation. In July 2007, the program at HGM was expanded to include all newborns. Some NHS programs have been implemented in a few public and private hospitals around the country as well (42).

When a baby does not pass the initial screening, a rescreening is performed before the baby leaves the hospital. As part of this effort, HGM has a manual describing the responsibilities of those involved with the NHS program. When a child is identified with hearing loss, the services usually available include hearing aids, speech-language therapy, genetic services, cochlear implants and family education. The services are paid for by the government, nonprofit organizations, and the family. With implementation of the government-sponsored insurance plan, Seguro Médico para una Nueva Generación, it is expected that access to screening, diagnostic, and specialized therapy services will be improved. Through the Ministry of Health and under the coordination of the Audiology Department of the HGM, 520 professionals at 265 hospitals in 29 of the 32 states in the country have been trained to start screening babies in 2009. Moreover, funds have been allocated to provide

screening equipment to 300 entities. A national database will eventually be implemented to assist with follow-up.

Panama. Since 2000, Panama has offered targeted NHS in some public and private birthing hospitals. There is no NHS law in place, but a local group is advocating for implementation of universal NHS. In 2006, the Rotary Club of Panama initiated a campaign to promote NHS that helped raise funds to acquire five ABR machines. However, given a lack of qualified staff to perform the screenings, only two machines are being used. When a baby does not pass the hearing screening, the primary care provider is in charge of informing the family about the importance of further testing by an audiologist. Available interventions include speech-language services, hearing aids, and genetic services. The services are paid for by the government, nonprofit organizations, and the family. The Instituto de Implantes Cocleares was created in 2006 with the goal of educating professionals and the general public about the availability of cochlear implants and providing them to people in need.

Puerto Rico. Puerto Rico is a U.S. territory and receives directives regarding health care initiatives from the U.S. government. An NHS program, Programa de Cernimiento Auditivo Neonatal Universal (43), operates in all birthing hospitals. The program was initiated in January 2000 and became required by law in December 2003. The law requires screening, referral for medical evaluation, audiological evaluation, and reporting of results to the NHS program within the Department of Health. In 2006, approximately 85.0% of newborns were reportedly screened for hearing loss and 3.5% of them did not pass.

When a baby does not pass the hearing screening, staff from the Department of Health are responsible for making sure the baby receives follow-up testing by an audiologist. If a hearing loss is identified, the services available include hearing aids, speech-language therapy, genetic services, cochlear implants, and family education. These services are paid for by the government, families, and various medical plans. Ongoing barriers include a lack of funding, equipment, qualified personnel to work with young children, and awareness about the effects of hearing loss in children.

Uruguay. Beginning in 2000, Uruguay started implementing targeted and universal NHS in a limited number of public and private hospitals. Several hospitals in the capital city of Montevideo and one hospital in the city of Paysandú offer NHS. In 2005, the hospital in the city of Paysandú reportedly screened 490 babies, 32 of whom did not pass the initial screening. Of those not passing, 30 returned for an audiological evaluation and 1 was diagnosed with hearing loss. The baby's primary care provider is usually the one in charge of providing further audiological testing. Hearing aids, speech-language therapy, and cochlear implants are available for children diagnosed with hearing loss. The government and the infant's family usually pay for these services. Campaigns to inform the public about hearing screenings have occurred but no legislation, website, or NHS database is in place.

To help improve networking related to NHS activities among Latin American countries, a teleconference was held in July 2008 with representatives from the United States, Chile, and Puerto Rico. Other countries had expressed interest in this conference call but logistic issues prevented a number of them from joining. The participating representatives shared information on current hearing screening practices, statistics, successes, and barriers to implementation. The representative from the U.S.-based National Center for Hearing Assessment and Management shared the Center's experience in helping Costa Rica develop and implement an NHS program. The representative from Chile described in detail the process followed in one of Chile's hospitals as well as the status of the program in that country. The representative from Puerto Rico summarized some of the procedures Puerto Rico was using related to screening and answered questions from other countries about Puerto Rico's unique situation as both a Spanish-speaking country and a U.S. territory. During this teleconference, participants expressed interest in meeting every 2 or 3 months to discuss topics related to NHS in Latin America and to invite other professionals to share their experiences. While the authors have been able to continue communicating with some of the countries, regularly scheduled teleconferences have not been possible because of ongoing logistic issues.

DISCUSSION

Among the survey respondents, it is apparent that there is variation in the extent of efforts to identify infants with hearing loss in Latin America. The response to infant hearing loss ranges from activities implemented at the national level to efforts by individuals in a single hospital or region of a country. It appears that countries in Latin America with higher GNI per capita, such as Mexico and Brazil, are somewhat more likely to have the resources needed to implement NHS programs. However, some Latin American countries with lower GNI per capita have nonetheless been able to implement NHS programs in at least some hospitals or regions. Despite various obstacles, the dedication and resourcefulness of many professionals in Latin America have made it possible for countries in this region to begin or expand efforts to serve children affected by hearing loss.

While screening infants for hearing loss now occurs in some hospitals and regions, to date no national level NHS programs have been fully implemented in any country in Latin America. As a result, it is difficult to determine the actual prevalence of newborn hearing loss in Latin American countries because these data are not systematically collected and analyzed on a national level. This lack of prevalence data can be problematic for further implementation of NHS programs because this information is important in justifying the need for these programs.

As noted above, the implementation of NHS programs varies across Latin America. For example, programs in some countries rely on highly trained professionals, such as otolaryngologists, to provide services because they are the only ones with the necessary training; other countries rely on less highly trained staff. Because the profession of audiology is not well established in many Latin American countries, limited diagnostic and other related services are available

for children with hearing loss. There is a category of professionals in Latin America known as fonoaudiólogo(s), and professional titles may vary from one country to another (24). Most of these professionals, however, do not have experience working with babies.

NHS is just the first step of a process, which should lead to timely diagnosis and the provision of intervention services for infants with hearing loss. In general, countries around the world with well-established NHS programs have also been able to implement intervention programs. In contrast, countries that are just starting to implement NHS, such as some of those in Latin America, are less likely to have the professional capacity and other resources needed to implement intervention programs for children diagnosed at a young age. As a result, some children diagnosed with hearing loss in Latin America may not receive intervention services until they begin school at the age of 6 or 7 years.

Ideally, any country that has implemented NHS should have the capacity to provide intervention services to every newborn diagnosed with hearing loss. While there are a number of professionals throughout Latin America dedicated to expanding intervention services to children with hearing loss, the availability of qualified professionals, such as pediatric audiologists and early intervention providers, often remains limited, especially in rural areas. In addition, the pressure to prioritize often scarce resources means that the availability of adequate follow-up services can be limited; as a result, some families with the necessary financial resources may travel to the United States or elsewhere to obtain services for their children with hearing loss. However, intervention professionals in the United States and other developed countries often are not familiar with the culture and language of these new patients, which can hamper the provision of adequate services. An understanding of the language and culture of the fami-

lies that travel to the United States can potentially assist professionals in providing appropriate and effective intervention services.

Limitations

First, the results summarized in this article do not fully represent the status of NHS-related activities in Latin America because not all countries responded to the repeated requests to complete this survey. Second, in some cases the person responding to the survey did not necessarily know about the status of NHS activities in other parts of the country or at the national level. Third, the data reported by each respondent are not readily comparable among countries. For example, some respondents reported data for the year 2005, while others reported data for the year 2006.

Conclusions

In spite of several barriers, NHS programs have been implemented in at least some facilities and regions in the Latin American countries that responded to this survey. The existence of these programs is notable given the diligent efforts by a relatively small number of stakeholders and the limited resources available to establish and then support the operation of these NHS programs. While progress has been made in identifying children with hearing loss and offering appropriate services, there are a number of barriers to expanding and establishing new NHS programs in Latin America. As a result, continued efforts are needed to ensure that the approximately 11 million annual births in Latin America are screened for hearing loss and receive recommended follow-up services.

Disclaimer. The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the U.S. Centers for Disease Control and Prevention (CDC).

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RESUMEN**Panorama de las actividades de examen sistemático de la capacidad auditiva en recién nacidos en América Latina**

Objetivo. Evaluar la situación de los servicios de detección e intervención tempranas de problemas auditivos en América Latina.

Métodos. Entre junio y noviembre del 2007, la universidad Gallaudet, en colaboración con el Comité de Diversidad del Programa de Detección Auditiva e Intervención Tempranas de los Centros para el Control y la Prevención de Enfermedades de los Estados Unidos, distribuyó un cuestionario en 11 países latinoamericanos. El cuestionario incluía preguntas acerca de los procedimientos de examen sistemático de la capacidad auditiva en recién nacidos, la disponibilidad de servicios de intervención para menores de un año hipoacúsicos y los retos para detectarlos. Además, se efectuó una revisión bibliográfica para ayudar a determinar el estado de las iniciativas de examen sistemático de la audición en recién nacidos en América Latina.

Resultados. Respondieron a la encuesta seis países (Chile, Costa Rica, Guatemala, México, Panamá y Uruguay) y un territorio de los Estados Unidos (Puerto Rico). Las respuestas indicaron que los esfuerzos para detectar a los menores de un año hipoacúsicos varían dentro de cada país y de un país a otro en América Latina. En algunos países se han realizado actividades a nivel nacional; en otros, en un único hospital o zona del país. Los factores que con frecuencia obstaculizan la puesta en práctica de los programas de examen sistemático de la audición en recién nacidos incluyen la falta de financiamiento, de equipos de tamizaje y diagnóstico, de concientización del público y de personal capacitado para atender a menores de un año y niños pequeños.

Conclusiones. A pesar de que existen varios obstáculos, se han ejecutado programas de examen sistemático de la audición en recién nacidos en al menos algunos establecimientos de salud y zonas de América Latina. Se necesitan esfuerzos mayores para ampliar estas actividades en América Latina.

Palabras clave Pérdida auditiva; sordera; tamizaje masivo; América Latina.