



Vision and Hearing

U.S. Department of Health & Human Services • Public Health Service

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PROGRESS REVIEW



In the 27th in a series of assessments of *Healthy People 2010*, Deputy Assistant Secretary for Health (Disease Prevention and Health Promotion) Penelope Royall chaired a focus area Progress Review on Vision and Hearing, in which she was assisted by staff of the lead agency for this *Healthy People 2010* focus area, the National Institutes of Health (NIH). This leadership role is carried out by two NIH Institutes, the National Eye Institute (NEI) and the National Institute on Deafness and Other Communication Disorders (NIDCD). CAPT Royall complimented those associated with this recently created focus area on their outstanding performance in bringing new scientific knowledge to the front lines of health care and in the monitoring of the quality of that care. She stressed the importance of early intervention to protect and conserve the vision and hearing of young children and to mitigate the severity of vision and hearing impairments that can heavily degrade the quality of life of older Americans. Also participating in the review were representatives of the U.S. Department of Veterans Affairs and other U.S. Department of Health and Human Services (HHS) offices and agencies.

The complete text for the Vision and Hearing focus area of *Healthy People 2010* is available at www.healthypeople.gov/document/html/volume2/28vision.htm. The meeting agenda, tabulated data for all focus area objectives, charts, and other materials used in the Progress Review can be found at www.cdc.gov/nchs/about/otheract/hpdata2010/focusareas/fa28-vision.htm.

Data Trends

Edward Sondik, Director of the National Center for Health Statistics/Centers for Disease Control and Prevention (CDC), provided an overview of the national impact of vision and hearing disorders. Approximately 85 million people in the United States have potentially blinding eye diseases, have low vision, or are legally blind. The economic burden of visual disorders and disabilities came to about \$38.4 billion in 1995. An estimated 28 million people in the United States are deaf or hard of hearing. Dr. Sondik then proceeded to report on progress achieved in meeting the targets of selected *Healthy People 2010* objectives in the Vision and Hearing focus area.

In 2002, the first year for which data have ever been available, the age-adjusted rate of visual impairment due to diabetic retinopathy among persons age 18 and older with diabetes was 45.9 per 1,000. The age-adjusted rate for Hispanics in that age group was 73.3 per 1,000, compared with 41.0

per 1,000 for non-Hispanic whites age 18 and older. The 2010 target is 40.0 per 1,000 (Obj. 28-5). In 2002, the age-adjusted rate of visual impairment due to glaucoma in adults age 45 and older was 13.5 per 1,000. Among non-Hispanic blacks with glaucoma in that age group, the rate of visual impairment was 38.4 per 1,000 (and more than 50 per 1,000 for those who had not completed high school). For persons age 45 and older who had both glaucoma and diabetes, the visual impairment rate was 29.1 per 1,000 in 2002. The target is 10.5 per 1,000 (Obj. 28-6).

Persons with visual impairments age 18 and older made use of visual rehabilitation services, such as job training, counseling, or support, at a rate of 14.1 per 1,000 (age adjusted) in 2002. The target is 14.2 per 1,000 (Obj. 28-10a). In 2002, persons with visual impairments age 18 and older used visual adaptive devices, such as magnifiers, closed circuit television, white canes, or guide dogs, at an age-adjusted rate of

22 percent. Among population groups for which data were available, usage rates did not vary significantly by race and ethnicity, gender, or educational attainment. The target is 25 percent (Obj. 28-10b).

Data for 2001 indicate that 66 percent of newborn infants received hearing screening within 1 month of birth. The target is 90 percent (Obj. 28-11a). Of those infants for whom audiologic evaluation was indicated, 56 percent received this service before they reached 3 months of age. The target is 70 percent (Obj. 28-11b). Of those infants who were evaluated, 57 percent were enrolled in appropriate intervention services before the age of 6 months. The target is 85 percent (Obj. 28-11c). In 2002, children and

adolescents age 18 and younger made physicians' office visits for otitis media at a rate of 302.9 per 1,000, compared with 344.7 per 1,000 in 1997. The target is 294 per 1,000 (Obj. 28-12). Among the age group younger than 3 years, the rate of visits was 937.5 per 1,000 in 2002, and for children age 3 to 5, the rate of visits was 452.5 per 1,000 in that year.

In 1999, the rate of new cochlear implants was 17 per 10,000 for deaf or very hard-of-hearing persons. Among all age groups, the highest rate of new cochlear implants is reported for deaf or very hard-of-hearing children younger than 6 years of age. The target for the total population is 100 new implants per 10,000 (Obj. 28-13b).

Key Challenges and Current Strategies

In the presentations that followed the data overview, the principal themes were introduced by representatives of the two co-lead agencies—Paul Sieving, Director of NEI, and James Battey, Jr., Director of NIDCD. These agency representatives set the stage for discussions that ensued among participants in the review, identified a number of barriers to achieving the objectives, and discussed activities under way to meet these challenges, including the following:

- **(Vision)** Diabetic retinopathy affects more than 5.3 million people with diabetes age 18 and older.
- Prevalence of diabetic retinopathy parallels the epidemic of type 2 diabetes, which is more prevalent among American Indians/Alaska Natives than among any other racial or ethnic group. Hispanics also are disproportionately affected. The Los Angeles Latino Eye Study found that participants who had diabetes for 15 years or more were more than 3 times as likely to have diabetic retinopathy and more than 23 times as likely to have a severe form of the disease than those who had been newly diagnosed.
- Glaucoma is a leading cause of blindness in black Americans and Hispanics. The disorder has no symptoms, causes no pain, and does not affect vision until peripheral vision has disappeared. Of the estimated 2.2 million Americans who have glaucoma, half are unaware of the presence of the disease.
- Through its National Eye Health Education Program (NEHEP), launched in 1991, NEI provides Federal leadership, technical expertise, and resources that have enabled the vision community to work as a united force to reduce blindness and vision impairment and to reach out to people who are at highest risk for eye diseases and disorders.
- In 2000, the HHS Indian Health Service (IHS) deployed a telemedicine system specialized for the remote diagnosis of diabetic retinopathy. IHS increased ophthalmologist staffing at its facilities by 20 percent in 2003–2004.
- NEI has formed two distinct partnerships that advance progress toward achievement of the *Healthy People 2010* objectives for vision. First, the NEHEP Partnership represents more than 70 national organizations in the public and private sector that are working with their chapters, members, and affiliates to support the objectives. Second, the Healthy Vision Consortium is made up of professionals and more than 180 local organizations that have made a commitment to achieving these objectives. In addition, the American Optometric Association signed a *Healthy People 2010*

- Memorandum of Understanding with HHS, under which the association is working with state health departments to address the objectives.
- Each May, NEI sponsors Healthy Vision Month to focus national public attention on eye health. Each year, a different *Healthy People 2010* vision objective is featured. The May 2004 observance promoted the importance of having people with diabetes receive annual comprehensive dilated eye exams. Some components of this program will remain in use beyond 2004.
 - Through the new Healthy Vision Community Awards Program, NEI provides “seed money” to develop innovative vision-related health education projects that have the potential for sustainability. From the program’s beginning in 2002, more than 120 awards of \$10,000 each have been made to collaborative community health education initiatives that support Healthy Vision 2010 objectives.
 - **(Hearing)** Congenital hearing loss, at a rate of approximately 3 per 1,000 births, occurs more frequently than other conditions for which newborns are routinely screened. At least 50 percent of congenital hearing loss has a genetic origin.
 - Otitis media, an infection or inflammation of the middle ear, is one of the most common reasons for physician visits by children and adolescents and costs the United States from \$3 to \$5 billion annually. This illness often occurs in children who have not yet developed speech and language, thus making it difficult for parents to know when their child is suffering from an ear infection. More than half the children in this country have an episode of acute otitis media before their first birthday, and 90 percent have an episode by age 5.
 - Medicare for older adults and people with disabilities and Medicaid for economically disadvantaged patients do not reimburse fully the cost of cochlear implants, resulting in disparities in access to health care and utilization.
 - NIDCD published a Request for Applications that called for research on specific pathogenic mechanisms that trigger otitis media, genomic approaches to the development of an otitis media vaccine, and studies of genomic markers in individuals that might identify a predisposition to chronic otitis media infections. Several grants have been funded in response to this announcement.
 - NIDCD has an ongoing activity in which it creates initiatives for Hispanic individuals through participation with various Spanish-language and Hispanic interest meetings, exhibit opportunities, and collaborative efforts with the NIH Hispanic Communications Workgroup.
 - A new technology using short electrodes promises to yield greater benefit from cochlear implants by restoring hearing at high frequencies, while preserving low-frequency, residual hearing in individuals who have been unsuccessful in using hearing aids.
 - The CDC Early Hearing Detection and Intervention (EHDI) program monitors newborn screening implementation in collaboration with directors of speech and hearing programs in state health and welfare agencies. EHDI reported that, in 2001, 73 percent of hospitals or birthing centers performed universal hearing screening in 52 participating states/areas.
 - Under the leadership of NIDCD and CDC’s National Institute on Occupational Safety and Health, a national effort called *Wise Ears!* was launched by a coalition of Federal agencies; state agencies; public interest, advocacy, and patient organizations; businesses; industries; and unions to educate the public about hearing protection. The initiative gives special attention to children and the workforce.
 - The recent discovery of bacterial biofilms, which remain in the middle ear space long after acute onset of otitis media, is providing new insight into the genesis of chronic otitis media with persistent middle ear effusion. Eventually, the discovery should lead to new treatment options.

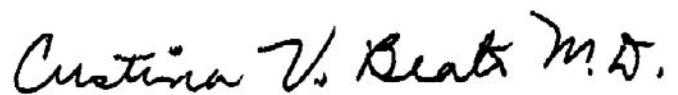
Approaches for Consideration

Participants in the review made the following suggestions for steps to enable further progress toward achievement of the objectives for the Vision and Hearing focus area:

- **(Vision)** Exert greater efforts to raise awareness of the availability of vision rehabilitation services among people who have visual impairments.
- Pursue studies on the interacting roles of the environment and genetics in risk factors for retinal disease.
- Strive to describe more completely the prevalence, physiology, and natural history of optic neuropathies such as glaucoma, as well as the history of intervention results, over the full course of these diseases and within racial and ethnic subpopulations.
- Develop a knowledge base of design requirements for architectural structures, open spaces, and parks, and the devices necessary to help people with visual impairments to get around and perform everyday tasks.
- **(Hearing)** Promote training of audiologists in procedures for fitting hearing assistive devices for very young children and infants.
- Increase research and development to produce and refine hearing aids capable of selective amplification of sound, as in the speech of persons directly in front of the hearing aid wearer whom they are addressing.
- Intensify followup studies on persons who have received cochlear implants to determine why some implantees benefit much more than others. Seek to define more clearly the benefits and constraints of binaural (dual) cochlear implantation.
- Direct additional resources to development of a vaccine against otitis media and to the identification and characterization of genes responsible for hereditary hearing impairment.
- **(Vision and Hearing)** Step up collaboration between NEI and NIDCD and other Federal agencies with a special interest in addressing problems of vision and hearing among their clientele, such as the Administration on Aging, IHS, the U.S. Department of Veterans Affairs, and the U.S. Department of Education.

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