Individuals with hearing or vision loss face significant barriers in accessing health care, resulting in documented health inequities. These barriers are typically in the form of inaccessible communication or information, as well as impediments to orientation or mobility. Compliance with applicable accessibility laws, such as the Americans with Disabilities Act, requires that providers have a sound understanding of the specific aids and services that assure compliance.

Hearing Loss and Accessibility: A Major Public Health Concern

Deaf, Hard of Hearing, and Deaf-Blind individuals face significant barriers in accessing health care, resulting in documented inequities (see Figure 1) [1]. Various reasons for these inequities have been identified, including poor health literacy and biologic health differences (related to deafness etiologies), but one major factor is communication barriers [2]. Deaf individuals who rely on American Sign Language (ASL) as their primary language for communication experience a lack of cultural competency among health care providers [2]. Highlighting the urgency of this matter, the National Academies of Sciences, Engineering, and Medicine issued a report, *Hearing Health Care for Adults: Priorities for Improving Access and Affordability*, which recommends that “... hearing loss be recognized as a public health concern....” [3].

Demographics and Statistics of Hearing Loss

Hearing loss is one of the most prevalent and rapidly growing disabilities. In North Carolina alone, between 2002 and 2030, the hearing loss population (aged 18 and over) is projected to increase by 69%, from 975,770 individuals to 1,649,348. In 2014, the North Carolina hearing loss population was 16% of the total North Carolina population. This percentage will increase to 18% by the year 2030. Most of the projected increase is among older adults; hearing loss is the third most prevalent health issue, after arthritis and heart disease, for this population [5]. Of the projected growth of 673,578 North Carolina adults with hearing loss, more than 75% (516,137) will be people aged 65 and older (see Figure 2) [4].

Additionally, among military veterans, permanent hearing loss and tinnitus are the most common combat-related disabilities, affecting 60%, or approximately 600,000, of those returning from Iraq and Afghanistan [6].

Accommodations to Assure Effective Communication

The Americans with Disabilities Act (ADA) of 1990 mandates that health care providers offer reasonable accommodations to ensure that individuals with disabilities have the same access to services as those without disabilities. For Deaf, Hard of Hearing, and Deaf-Blind individuals, the way to achieve equal access to services is to communicate effectively, using appropriate accommodations. Effective communication simply means information is transmitted between parties clearly and understandably, just as it would be for all parties that are not Deaf, Hard of Hearing, or Deaf-Blind. Accommodations include either the provision of auxiliary aids or services that ensure effective communication.

Achieving effective communication in health care settings, however, can be extremely complex. Hearing loss encompasses a wide range of disability, from those born profoundly deaf, to those with adult-onset mild/moderate hearing loss, to those with various manifestations of both hearing and vision loss. These variations mean that there is a corresponding wide variation in communication barriers and solutions to these barriers. Such diversity within the hearing loss population could be challenging in terms of ensuring Deaf, Hard of Hearing, and Deaf-Blind individuals receive appropriate accommodations for effective communication in health care settings.

Common examples of communication methods used include, but are not limited to, personal assistive listening devices, American Sign Language, written English, Braille,
FIGURE 1.
Percentage of Adults Aged 18 Years and Over Who Have Fair or Poor Health by Hearing Status: United States, 2000-2006

Source. Schoenborn, CA, Heyman K. Health disparities among adults with hearing loss: United States, 2000-2006 [1].

FIGURE 2.
2002-2030 Projected Increase in North Carolina Adult Population with Hearing Loss, by Age Groups

Source. North Carolina Division of Services for the Deaf and the Hard of Hearing [5].
large print, and speechreading. The specific accommodation that best assures effective communication varies, depending on the individual’s preferred communication method, type of setting, context, and complexity of communication. Providers should give primary consideration to the choice of aid or service requested by the person who is Deaf, Hard of Hearing, or Deaf-Blind.

A number of health care providers have made the mistake of assuming a one size fits all mentality in the provision of accommodations for this population. One example is the use of Video Remote Interpreting (VRI) as an accommodation. VRI is a service in which a sign language interpreter located remotely, or off-site, provides interpreting services using a web camera or videophone. Its increasing popularity is based on convenience and comparatively low cost (as opposed to hiring an interpreter to provide the service on site). However, there are many situations where this method of accommodation fails to comply with the legal mandate to assure effective and confidential communication. Reasons include but are not limited to the following: technical difficulties such as unclear image or broken connection; software that is not HIPAA-compliant; a monitor that is too small or anchored and/or located in such a way that a patient has difficulty viewing the interpreter; socio-linguistic and interpersonal challenges that are best met by an on-site interpreter.

**Resources**

The Division of Services for the Deaf and the Hard of Hearing (DSDHH), a division within the North Carolina Department of Health and Human Services (DHHS), has long recognized communication access in health care as a major issue, and, as a result, has developed a number of resources to address it. Two articles published in the North Carolina Medicaid Bulletin in November 2014 and September 2015 are applicable to all persons with or without insurance and provide guidance to health care providers about communicating with patients who are deaf or hard of hearing [7, 8].

DSDHH developed two training curricula designed for health care providers, focusing on cultural competency and effective communication. Topics include, among others, a description of the various types of hearing loss, communication barriers and their solutions (eg, technology and services), and how to procure the services of a qualified sign language interpreter. One curriculum is for skilled care and home health care providers in particular. This curriculum has been endorsed by the Association of Home and Hospice Care of North Carolina, the North Carolina Division of
Health Services Regulation, and the North Carolina Division of Aging and Adult Services. The second curriculum is for a broader range of health care providers and is provided through North Carolina’s Area Health Education Centers. Continuing education credits are available for both these training curricula.

DSDHH also sponsors Different, Different World, a specially-designed experiential training held at hospitals where participants who do not have hearing loss experience firsthand what it is like to face communication barriers in a health care setting. DSDHH also provides expert consultation to hospitals and other health care facilities on policies and procedures governing the provision of accommodations, as well as individual cases. Consultation has been provided and continues to be available to national health care companies based in other states that provide their services in North Carolina.

Due to the complexity of assuring communication access, providers are encouraged to contact DSDHH with their questions. All services provided by DSDHH are available at no charge through DSDHH’s administrative office and 7 regional centers, which serve all 100 North Carolina counties. Contact information can be found at www.ncdhhs.gov/dsdhh.

Barriers to Care for those Who Are Blind, Visually Impaired, and Deaf-Blind

There are also significant barriers to access to health care for individuals who are blind, visually impaired, and deaf-blind. Individuals with visual impairments often lack insurance coverage or have insufficient coverage. Inadequate coverage is often compounded by limited financial and supplemental resources, all of which can limit access to needed health care and places individuals who have visual impairments at risk. According to the American Community Survey results, as interpreted in 2014 by Cornell University’s Employment and Disability Institute, an estimated 22.5% of noninstitutionalized North Carolinians with significant vision loss aged 16 and older were uninsured [9]. During that same period and in the same demographic group, an estimated 34.6% were living below the poverty level [9].

Lack of sensitivity to and awareness of the needs and abilities of individuals who are blind, visually impaired, and deaf-blind presents a major barrier to accessing health care. The Association of Schools and Colleges of Optometry Guidelines for Culturally Competent Eye and Vision Care state, “Cultural competence is directly linked to the Institute of Medicine’s six principles of health care quality. Safety, effectiveness, patient-centeredness, timeliness, efficiency,
and equity are mediated through culturally competent providers and a culturally competent health care system” [10].

**Accommodations to Assure Participation**

Individuals who are blind, visually impaired, and deaf-blind have the right to participate in all aspects of society. As previously noted, the ADA specifies that health care providers are required to provide reasonable accommodations for all persons who have disabilities, including those who have vision loss. Individuals who have significant vision loss have transportation challenges in traveling to health care facilities. Techniques and tools used to navigate include mobility canes, sighted-guides, dog guides, and electronic mobility devices. Providers and facilities should be aware of the various means and methods of assistance required to help an individual with significant vision loss travel safely and independently.

ADA regulations require public and private entities, including health care facilities and service providers, to provide appropriate auxiliary aids and services where necessary to ensure that individuals with speech, hearing, and vision disabilities can communicate effectively. Each individual presents different, unique needs, so the patient is the best source to identify the most effective auxiliary aids and services to facilitate communication. Some common communication aids and services used in health care settings for individuals who are blind, visually impaired, and deaf-blind are qualified readers, audio recordings, braille materials, high contrast and braille signage and displays, large print materials, magnifiers and video magnification systems, accessible electronic information, assistive listening aids, and American Sign Language for individuals who are deaf-blind.

**Resources for Residents who are Blind, Visually-impaired, and Deaf-Blind**

The North Carolina Division of Services for the Blind (DSB), a division within DHHS, is a key partner in the continuum of care for state residents who are blind, visually-impaired, and deaf-blind. Our programs and services help individuals who have significant vision loss to obtain, regain, maintain, and advance in employment, and to reach their desired goals for independence in their homes, communities, and workplaces. Services are available to eligible individuals in all 100 counties of the state and include our Vocational Rehabilitation Program, Independent Living Services and Independent Living Older Blind Rehabilitation Programs, and Medical Eye Care Program, which provide services including low vision screenings, orientation and mobility instruction, assistive technology consultation/instruction, and deaf-blind services. These specialized and highly individualized services are provided by a team of professionals including, but not limited to, vocational and independent living rehabilitation counselors, social workers for the blind, nurse eye care consultants, low vision specialists, deaf-blind specialists, orientation and mobility specialists, and assistive technology consultants and instructors. Our staff works out of 7 district offices located in Asheville, Charlotte, Winston-Salem, Raleigh, Fayetteville, Greenville, and Wilmington. In addition to services provided in local communities, DSB operates a residential facility, the North Carolina Rehabilitation Center for the Blind, which is located on the Governor Morehead School Campus in Raleigh, North Carolina. All direct-care services are available to eligible individuals at no cost.

It is critical that the medical community be aware of these vital services and share this information with patients who have significant vision loss so that we, as partners, can help them achieve the best quality of life. DSB can provide consultation and/or in-service training to help medical staff become more knowledgeable about how to assist a person with vision loss and the services and supports available from DSB and other resources.

DSB’s Medical Eye Care Program provides financial support for individuals who do not have medical insurance of any type and who have limited financial resources. Assistance in obtaining medication, treatment, and some surgical procedures is available. Our Medical Eye Care Program does not provide financial assistance for eye exams and eyeglasses at this time.

DSB has a small Communications Unit whose primary responsibility is to provide materials in alternative format for DSB staff and consumers. The general public is also assisted with braille production on a very limited basis contingent upon the availability of resources.

Making a referral to the North Carolina Division of Services for the Blind is a simple process. If the patient is interested in learning more about DSB and/or receiving services, obtain a release of information and send us contact information for the patient along with a description of the nature of the individual’s eye condition. Also, providing the most current eye exam report will help expedite the process of determining the patient’s eligibility for services. Please visit our website for more information about DSB including contact information at www.ncdhhs.gov/dsb/. NCM

Jan Withers, MA director, North Carolina Division of Services for the Blind and the Hard of Hearing, Raleigh, North Carolina.

Cynthia Speight, MS interim director, North Carolina Division of Services for the Blind, Raleigh, North Carolina.

**Acknowledgments**

Potential conflicts of interest. J.W. and C.S. have no relevant conflicts of interest.

**References**

1. Schoenborn CA, Heyman K. Health Disparities Among Adults With Hearing Loss: United States, 2000-2006. Centers for Disease Control and Prevention website. https://www.cdc.gov/nchs/data/hestat/hearing00-06/hearing00-06.pdf. Published May 2008. Accessed January 5, 2017.

2. Wax T. Accessibility Concerns in Health Care Settings for Deaf, Hard of Hearing and Deaf-Blind North Carolinians: Draft Report (unpublished report). Raleigh, NC: Division of Services for the Deaf and the Hard of Hearing; 2016.

3. Committee on Accessible and Affordable Hearing Health Care
for Adults. Hearing Health Care for Adults: Priorities for Improving Access and Affordability. Blazer, DG, Domnitz S, Liverman CT. eds. The National Academies Press website. https://www.nap.edu/read/23446/chapter/1. Published 2016. Accessed November 28, 2016.

4. Hearing Loss Association of America. Hearing Loss: Facts and Statistics. The Hearing Loss Association of America website. http://www.hearingloss.org/sites/default/files/docs/HearingLoss_Facts_Statistics.pdf. Accessed November 28, 2016.

5. North Carolina Division of Services for the Deaf and the Hard of Hearing. Compiled from North Carolina Office of State Budget and Management 2002, 2014, and 2030. Actual and Projected County Population by Age and National Health Interview Survey 2011-2014. Average of U.S. Population. Age Adjusted Percentages of Population with Hearing Loss. National Center for Health Statistics website. https://www.cdc.gov/nchs/hestat/hearing00-06/hearing00-06.pdf. Published May 2008. Accessed November 29, 2016.

6. New Republic Report: Hearing Loss is Top War Injury Among Vets. The Hearing Review website. http://www.hearingreview.com/2016/08/new-republic-report-hearing-loss-top-war-injury-among-vets/. Published April 10, 2014. Accessed November 29, 2016.

7. North Carolina Medicaid Special Bulletin. Communicating Effectively with Deaf, Hard of Hearing and Deaf-Blind Patients and Their Family Members in Healthcare Settings. North Carolina Division of Medical Assistance website. https://ncdma.s3.amazonaws.com/s3fs-public/documents/files/1114-SPECIAL_BULLETIN_DSDHH.pdf. Published November 2014. Accessed November 29, 2016.

8. North Carolina Medicaid Special Bulletin. Title II Americans with Disabilities Act (ADA) and Section 504 Rehabilitation Act (RA). North Carolina Division of Medical Assistance website. https://ncdma.s3.amazonaws.com/s3fs-public/documents/files/0915_SPECIAL_BULLETIN_ADA-RA.pdf. Published September 2015. Accessed November 29, 2016.

9. Disability Statistics: Online Resource for U.S. Disability Statistics. American Community Survey (ACS). Ithaca, NY: Cornell University website. http://www.disabilitystatistics.org/. Accessed November 27, 2016.

10. Asco Guidelines for Culturally Competent Eye and Vision Care: An Adaptation of Best Practices from the Schools, Colleges, Organizations, and Associations of the Health Professions. The Association of Schools and Colleges of Optometry website. http://www.opted.org/partnerships-advocacy/diversity/cultural-competence/. Accessed December 4, 2016.