

American Speech-Language-Hearing Association
Technical Assistance
Healthy People 2010 – Health Objectives for the Nation¹
and
Roles of Audiologists and Hearing Scientists

Background

A summary of the Healthy People initiative and history is found in the ASHA Fact Sheet on this topic along with a description of the American Speech-Language-Hearing Association's (ASHA) efforts in this national health promotion and disease prevention program. This Technical Assistance packet contains excerpts from the two-volume *Healthy People (HP) 2010* report that pertain to ASHA audiologists and hearing scientists.

How did ASHA select which focus areas to highlight for member information?

ASHA strongly advocates on behalf of individuals with communication, hearing and related disorders and for quality audiology and speech-language pathology service delivery. A careful analysis of the final HP 2010 revealed several chapters with objectives and focus areas that directly relate to our patients and the consumers of our services. Other chapters support a more tangential relationship but can provide opportunities for audiologists, speech-language pathologists, and speech, language,

and hearing scientists to contribute to fulfilling the objectives. These areas and opportunities are highlighted in two ASHA technical assistance packets that have been developed for each profession. Members are encouraged to also review the HP 2010 document and develop additional ways to create unique community partnerships for developing strategies to meet the HP goals and objectives. To access the complete HP 2010 report, contact: <http://www.health.gov/healthypeople>; or call 1-800-367-4725.

This packet follows the sequence of Chapter Goals and Objectives found in HP 2010. For audiologists and hearing scientists, chapters 16, 20, and 28 are most directly relevant to audiology service delivery and related surveillance targets. Other chapters discussed in this packet may have tangential relevance to audiology practice and could be infused into activities in one's work setting, or community, or on a personal basis. Resources that ASHA has available with application to this project are contained in an accompanying *HP 2010 Resource Appendix* and/or are footnoted throughout the document that follows.

¹ This analysis is based on excerpted material from the Conference Edition of Healthy People 2010 (January, 2000).

Focus Areas and Objectives

Access to Quality Health Services

Co-lead agencies: Agency for Healthcare Research and Quality (AHRQ);
Health Resources and Services Administration (HRSA)

Goal: Improve access to comprehensive, high-quality health care services

Overview

Access to quality care is important to eliminate health disparities and increase the quality and years of healthy life for all Americans. The four components of the health care system are clinical preventive care, primary care, emergency services, and long-term and rehabilitative care. HP 2010 does not address tertiary services (hospital care and specialty care). The Agency for Healthcare Research and Quality (AHRQ) and the Centers for Disease Control and Prevention (CDC) will issue a National Report on Healthcare Quality on a broader array of quality measures. Barriers are described that involve the patient, provider, and system of care.

Issues and Trends

Access to quality care across each of the components in the continuum of care must be improved to realize the full potential of prevention. Major changes in the structure of the U.S. health care system, including the increasing influence of market forces, changes in payment and delivery systems, and welfare reform, have significant implications for vulnerable and at-risk populations.

Clinical preventive services have a substantial impact on many of the leading causes of disease and death. Improving access to appropriate preventive care requires addressing many barriers, including those that involve the patient, provider, and system of care. Patient barriers include lack of knowledge, skepticism about the effectiveness of prevention, lack of a usual

source of primary care, and lack of money to pay for preventive care. Health provider barriers include limited time, lack of training in prevention, lack of perceived effectiveness of selected preventive services, and practice environments that fail to facilitate prevention. System barriers can include lack of resources or attention devoted to prevention, lack of coverage or inadequate reimbursement for services, and lack of system to track the quality of care. Measuring and reporting how well preventive care is provided under different systems are essential first steps in motivating those systems that are not performing well to develop the information, tools, and incentives to improve care.

Opportunities

Increasing recognition of the critical role of preventive services across the continuum of care and the need for providers to incorporate preventive services into patient visits has led to the development of tools and projects designed to help providers and patients shift to a prevention-oriented health care system.

Relevant objectives

1-2: (Developmental)² Increase the proportion of insured persons with coverage for clinical preventive services.

1-3: (Developmental) Increase the proportion of persons appropriately counseled about health behaviors.

1-6: Reduce the proportion of families that experience difficulties or delays in obtaining health care or do not receive needed care for one or more family members.

² See ASHA HP 2010 Fact Sheet for an explanation of “developmental” objectives.

1-7: (Developmental) Increase the proportion of schools of medicine, schools of nursing, and other health professional training schools whose basic curriculum for health care providers includes the core competencies in health promotion and disease prevention.

1-8: In the health professions, allied and associated health profession fields, and the nursing field, increase the proportion of all degrees awarded to members of underrepresented racial and ethnic groups.

1-13: Increase the number of Tribes, States, and the District of Columbia with trauma care systems that maximize survival and functional outcomes of trauma patients and help prevent injuries from occurring.

1-14: Increase the number of States and the District of Columbia that have implemented guidelines for prehospital and hospital pediatric care.

1-15: (Developmental) Increase the proportion of persons with long-term care needs who have access to the continuum of long-term care services.

Disability and Secondary Conditions

Co-Lead Agencies: Centers for Disease Control and Prevention (CDC), National Institute on Disability and Rehabilitation (NIDRR), and U.S. Department of Education

Goal: Promote the health of people with disabilities, prevent secondary conditions, and eliminate disparities between people with and without disabilities in the U.S. population.

Overview

Because traditionally disability status has been equated with health status, the health and well-being of people with disabilities has been addressed primarily in a medical care, rehabilitation, and long-term care financing context. Four main issues emerge from this contextual approach: the belief that all people with disabilities automatically have poor health; the belief that preventing disabling conditions should be the major focus of public health; the lack of a cross-cutting, standard definition of “disability” or “people with disabilities” for public health; and the absence of discussion about the role of the environment in the disabling process. Underemphasis on health promotion and disease prevention activities targeting people with disabilities has increased

the occurrence of secondary conditions (medical, social, emotional, family, or community problems) that a person with a primary disabling condition likely experiences.

Issues and Trends

Understanding these issues will help to clarify the health status of people with disabilities and address the environmental barriers that undermine their health, well-being, and participation in life activities. Many health promotion activities are relevant to all people experiencing a disability, whether they are categorized by racial or ethnic group, gender, and primary conditions or diagnoses, such as major depression, cerebral palsy, diabetes, spinal cord injury, or fetal alcohol syndrome. The activities in themselves, however, do not address the prevention of specific primary conditions. The similarities among people with disabilities are as important as or more important than the differences among clinical diagnostic groups. Caregiver issues have also

See ASHA HP 2010 Resource Appendix.

been considered, as well as environmental barriers. Environmental factors affect the health and well-being of people with disabilities in many ways (e.g., weather can hamper wheelchair maneuvers). Compliance with the Americans with Disabilities Act (ADA) can help overcome some of these barriers.

The International Classification of Functioning and Disability (ICIDH-2), developed by the World Health Organization (WHO) with the input of several nations including the United States, provides uniform language and a framework to describe function, health, and disability status among all people. This framework will clarify definitional issues and include environmental factors.

Opportunities

Health promotion programs that focus on improving functioning across a spectrum of diagnoses and a range of age groups are effective in reducing secondary conditions and outpatient physician visits among people with disabilities. For example, interventions **for people with communication, hearing and related disorders** can improve access to health-enhancement programs.

Many health-promotion interventions already in place for the population at large may be easily adapted to the needs of people with disabilities. New strategies can be influenced by results of studies that describe risk factors for secondary conditions or protective factors against additional impairments.

Current guidelines provide opportunity to design health promotion interventions for people with disabilities that accommodate ongoing evidence-based evaluation and demonstrate cost-effectiveness.

Health promotion interventions for people with disabilities, in the community, clinical settings or elsewhere, should include culturally and linguistically appropriate elements.

6-1: Include in the core of all relevant *Healthy People 2010* surveillance instruments a standardized set of questions that identify "people with disabilities."

6-7: Reduce the number of people with disabilities in congregate care facilities, consistent with permanency planning principles, to 50% for adults and total elimination for persons aged 21 years and under.

6-8: Eliminate disparities in employment rates between working-age adults with and without disabilities.

6-9: Increase the proportion of children and youth with disabilities who spend at least 80% of their time in regular education programs.³

6-10: Increase the proportion of health and wellness and treatment programs and facilities that provide full access for people with disabilities.

6-11: Reduce the proportion of people with disabilities who report not having the assistive devices and technology needed.

6-13: Increase the number of Tribes, States, and the District of Columbia that have public health surveillance and health promotion programs for people with disabilities and caregivers.

³ ASHA holds the position that individual children should receive interdisciplinary assessments as stipulated under the Individuals with Disabilities Education Act (IDEA) to determine appropriate educational placements along a continuum of available settings.

Educational and Community-Based Programs

Co-Lead Agencies: Centers for Disease Control and Prevention (CDC),
Health Resources and Services Administration (HRSA)

Goal: Increase the quality, availability, and effectiveness of educational and community-based programs designed to prevent disease and improve health and quality of life

Overview

Educational and community-based programs have played an integral role in the attainment of Healthy People 2000 objectives and will continue to contribute to the improvement of health outcomes in the United States by the year 2010. These programs, developed to reach people outside traditional health care settings, are fundamental for health promotion and quality of life.

Issues and Trends

People working together can improve individual health and create healthier communities. Although more research is needed in community health improvement, clearly the health of communities depends not only on the health of individuals, but also on whether the physical and social aspects of communities enable people to live healthy lives.

Communities experiencing the most success in addressing health and quality-of-life issues have involved many components of their community: public health, health care, business, local governments, schools, civic organizations, voluntary health organizations, faith organizations, park and recreation departments, and other interested groups and private citizens.

Because many health problems relate to more than one behavioral risk factor, as well as to social and environmental factors, communities with effective programs also work to improve health by addressing the multiple determinants of a health problem.

These educational, policy, and environmental strategies are effective when used in as many settings as appropriate. Settings — schools,

worksites, health care facilities, and the community — serve as channels to reach desired audiences as well as apply strategies in as wide a population as possible. These settings also provide major social structures for intervening at the policy level to facilitate healthy choices. The school setting, ranging from preschool to university, is an important avenue to reach the entire population and specifically to educate children and youths. The growing cost of health care, combined with the increase of preventable acute and chronic illnesses, drives the continuing need for comprehensive worksite health promotion programs. This setting provides an opportunity to implement educational programs and policy and environmental actions that support health, and that benefit managers, employees and, ultimately, the community as a whole. In health care facilities, including hospitals, medical and dental clinics, and offices, health care providers often see their patients at a “teachable moment,” and thus have clinically significant effects on behavior in persons with chronic and acute conditions. Health promotion in schools, health care centers, and work sites provides targeted interventions for specific population groups; community-based programs can reach the entire population (i.e., public facilities, local government and agencies, social service, faith, and civic organizations).

Opportunities

Health promotion programs need to be sensitive to the diverse cultural norms and beliefs of the people for whom the programs are intended. Community assessment helps to identify the cultural traditions and beliefs of the community and the education, literacy level, and language preferences necessary for the development of appropriate materials and programs. Educational and community-based programs must be supported by accurate, appropriate, and accessible information derived from a science

base. Communities need to be involved as partners in conducting research to ensure that the content of the prevention efforts developed is tailored to meet the needs of the communities and populations being served.

7-2: Increase the proportion of middle, junior high, and senior high schools that provide comprehensive school health education to prevent health problems in the following areas: unintentional injury; violence; suicide; tobacco use and addiction; alcohol or other drug use; unintended pregnancy, HIV/AIDS, and STD infection; unhealthy dietary patterns; inadequate physical activity; and environmental health to 150% improvement.

7-3: Increase the proportion of college and university students who receive information from their institution on each of the six priority health-risk behavior areas by 25%.

7-5: Increase the proportion of worksites that offer a comprehensive employee health promotion program to their employees.

7-6: Increase the proportion of employees who participate in employer-sponsored health promotion activities.

7-7: Increase the proportion of health care organizations that provide patient and family education.

7-9: (Developmental) Increase the proportion of hospitals and managed care organizations that provide community disease prevention and health promotion activities that address the priority health needs identified by their community.

7-10: Increase the proportion of Tribal and local health service areas or jurisdictions that have established a community health promotion program that addresses multiple Healthy People 2010 focus.

7-11: Increase the proportion of local health departments that have established culturally appropriate and linguistically competent community health promotion and disease prevention programs for racial and ethnic minority populations.

7-12: Increase the proportion of older adults who have participated during the preceding year in at least one organized health promotion activity.

Health Communication

Lead Agency: Office of Disease Prevention and Health Promotion

Goal: Use communication strategically to improve health.

Overview

Health communication links the domains of communication and health and is increasingly recognized as a necessary element of efforts to improve personal and public health. Health communication can contribute to all aspects of disease prevention and health promotion and is

relevant in a number of contexts, including (1) health professional-patient relations; (2) individuals' exposure to, search for, and use of health information; (3) individuals' adherence to clinical recommendations and regimens; (4) the construction of public health messages and campaigns; (5) risk communication, the dissemination of individual and population health risk information; (6) images of health in the mass media and the culture at large; (7) the

See ASHA HP 2010 Resource Appendix.

education of consumers about how to gain access to the public health and health care systems; and (8) the development of telehealth applications.

For individuals, effective health communication can help raise awareness of health risks and solutions, provide the motivation and skills needed to reduce these risks, help to find support from other people in similar situations, and affect or reinforce attitudes. Health communication also can increase demand for appropriate health services and decrease demand for inappropriate health services. It can make available information to assist in making complex choices, such as selecting health plans, care providers, and treatments. For the community, health communication can be used to influence the public agenda, advocate for policies and programs, promote positive changes in the socioeconomic and physical environments, improve the delivery of public health and health care services, and encourage social norms that benefit health and quality of life.

Increasingly, health improvement activities are taking advantage of computer-based technologies, such as CD-ROM and the World Wide Web, that can target audiences, tailor messages, and engage people in interactive, ongoing exchanges about health. An emerging area is health communication to support community-centered prevention. Community-centered prevention shifts attention from individual to group-level change and emphasizes the empowerment of individuals and communities to effect change on multiple levels.

Issues and Trends

The environment for communicating about health has changed significantly. These changes include dramatic increases in the number of communication channels and the number of health issues vying for public attention, as well as in consumer demands for more and better quality health information, and the increased sophistication of marketing and sales techniques, such as direct-to-consumer advertising of prescription drugs and sales of medical devices and medications over the

Internet. The expansion of communication channels and health issues on the public agenda increases competition for people's time and attention; at the same time, people have more opportunities to select information based on their personal interests and preferences. The trend toward commercialization of the Internet suggests that the marketing model of other mass media will be applied to emerging media; this has important consequences for the ability of noncommercial and public health-oriented health communications to stand out in a cluttered health information environment.

People do not pay attention to all communications they receive but selectively attend to and purposefully seek out information. One of the main challenges in the design of effective health communication programs is to identify the optimal contexts, channels, content, and reasons that will motivate people to pay attention to and use health information.

Recognizing the diversity of the U.S. population, successful health promotion efforts must increasingly rely on multidimensional interventions to reach diverse audiences about complex health concerns, and communication must be integrated from the beginning with other components, such as community-based programs, policy changes, and improvements in services and the health delivery system.

Research shows that health communication best supports health promotion when multiple communication channels are used to reach specific audience segments with information that is appropriate and relevant to them. Some specific audience characteristics that are relevant include gender, age, education and income levels, ethnicity, cultural beliefs and values, primary language(s), and physical and mental functioning. Additional considerations include experience with the health care system, attitudes toward different types of health problems, and willingness to use certain types of health services. Particular attention should be paid to the needs of underserved audience members.

Opportunities

For health communication to contribute to the improvement of personal and community health during the first decade of the 21st century, stakeholders, including health professionals, researchers, public officials, and the lay public, must collaborate on a range of activities. These activities include (1) initiatives to build a robust health information system that provides equitable access; (2) development of high-quality, audience-appropriate information and support services for specific health problems and health-related decisions for all segments of the population, especially underserved persons; (3) training of health professionals in the science of communication and the use of communication technologies; (4) evaluation of interventions; and (5) promotion of a critical understanding and practice of effective health communication.

As patients and consumers become more knowledgeable about health information, services, and technologies, health professionals will need to:

- meet the challenge of becoming better communicators and users of information technologies,
- have a high level of interpersonal skills to interact with diverse populations and patients who may have different cultural, linguistic, educational, and socioeconomic backgrounds;
- receive more direct training in and experience with all forms of computer and telecommunication technologies;
- be prepared to respond to patients and consumers who want to use technology to discuss health concerns; and
- research and evaluate all forms of health communication in order to build the scientific base of the field and the practice of evidence-based health communication.

Objectives

11-2: (Developmental) Improve the health literacy of persons with inadequate or marginal literacy skills.

The following needs have been identified:

- Close the gap in health literacy to reduce health disparities
- Public and private efforts in the development of appropriate written materials and improvement in skills of those persons with limited literacy
- Creation of effective, culturally and linguistically appropriate, plain language health communications
- Professional publications and Federal documents that provide the criteria to integrate and apply the principles of organization, writing style, layout, and design for effective communication; and the distribution and use of these criteria
- Organizations such as public and medical libraries; voluntary, professional, and community groups; and schools to offer health literacy programs that target skill improvement for individuals with low-literacy and limited English proficiency.

11-3: (Developmental) Increase the proportion of health communication activities that include research and evaluation.

Research and evaluation systematically obtain information that can be used to refine the design, development, implementation, adoption, redesign, and overall quality of a communication intervention. Programs funded by Federal, philanthropic, and not-for-profit organizations could be strengthened with requirements for a minimum set of evaluation activities and specific measurements. At the least, programs should be expected to conduct appropriate audience testing for need, cultural and linguistic competence, comprehension, and receptivity.

11-4: (Developmental) Increase the proportion of health-related World Wide Web sites that disclose information that can be used to assess the quality of the site.

See ASHA Resource Appendix.

With the rapidly growing volume of health information, advertising, products, and services available on the Internet, serious concerns arise regarding the accuracy, appropriateness, and potential health impact of these sites. People are using the Internet to look up information, purchase medications, consult remotely with providers, and maintain their personal health records. Approximately 70 million persons in the United States use the Internet for health-related reasons, with significant potential for harm from inaccurate information, inferior quality goods, and inappropriate services. Many initiatives are under way to identify appropriate and feasible approaches to evaluate online health sites. Professional associations are issuing guidelines and recommendations, Federal agencies such as the Federal Trade Commission are actively monitoring and sanctioning owners of Web sites that are false or misleading, and developers and purchasers of online health resources are being urged to adopt standards for quality assurance.

To allow users to evaluate the quality and appropriateness of Internet health resources, health-related Web sites should publicly disclose the following essential information about their site: (1) the identity of the developers and sponsors of the site (and how to contact them) and information about any potential conflicts of interest or biases; (2) the explicit purpose of the site, including any commercial purposes and advertising; (3) the original sources of the content on the site; (4) how the site protects the privacy and confidentiality of any personal information collected from users; and (5) how the site is evaluated and updated. An additional mark of quality that should be present in a Web site relates to the site's accessibility by all users. Contents of the site should be presented in a way that it can be used by people with disabilities and with low-end technology.

11-5: (Developmental) Increase the number of centers for excellence that seek to advance the research and practice of health communication.

To enlarge the knowledge base of health communication and incorporate it into health promotion practice, a research and training infrastructure is needed to develop, model, and coordinate activities. For this purpose, centers for excellence located in academic institutions, national organizations, or research centers would be instrumental to meet scientific and practical needs. The centers would be responsible for an array of activities, such as (1) promoting the adoption of health communication theories and practices in health care, disease prevention, and health promotion initiatives; (2) developing and disseminating quality standards; (3) coordinating initiatives to develop a consensus research agenda; (4) developing systems to identify and assess health communication research; (5) evaluating communication strategies, messages, materials, and resources; (6) fostering networking and collaboration among health communicators, health educators, and other health professionals; (7) promoting health communication skills training for health professionals; and (8) promoting research and dissemination activities among specific population groups. Centers for excellence in health communication could be funded through Federal grants, foundations, or private sector health care organizations.

11-6: (Developmental) Increase the proportion of persons who report that their health care providers have satisfactory communication skills.

Good provider-patient communication contributes to quality care and improved health status. Studies indicate that patients find communicating with their health care providers difficult, and report that providers do not give them enough information, even though they

ASHA Desk Reference contains practice policies (e.g., guidelines, position statements, technical reports) of the Association. Other resources include the ASHA Web site (www.asha.org), consumer brochures, toll-free Consumer Helpline, radio, TV, and print Public Service Announcements; posters.

highly value the information and want to know more. Clear, candid, accurate, culturally and linguistically competent provider-patient communication is essential for the prevention, diagnosis, treatment, and management of health concerns.

The quality of provider-patient communication can affect numerous outcomes, including patient adherence to recommendations and health status. Appropriate information and communication with a provider can not only relieve patients' anxieties, but can also help patients understand their choices, allow them to participate in informed decision making, and better manage their own health concerns.

Heart Disease and Stroke

Co-Lead Agencies: Centers for Disease Control and Prevention (CDC);
National Institutes of Health (NIH)

Goal: Improve cardiovascular health and quality of life through the prevention, detection, and treatment of risk factors; early identification and treatment of heart attacks and strokes; and prevention of recurrent cardiovascular events.

Overview

Heart disease is the leading cause of death for all Americans. Stroke is the third leading cause of death. Heart disease and stroke continue to be a major cause of disability and a significant contributor to increases in health care costs in the United States. Epidemiologic and statistical studies have identified a number of factors that increase the risk of heart disease and stroke. In addition, clinical trials and prevention research studies have demonstrated effective strategies to prevent and control these risk factors and thereby reduce illnesses, disabilities, and deaths caused by heart disease and stroke.

Issues and Trends

Coronary heart disease (CHD) accounts for the largest proportion of heart disease. Absolute declines (reduction in the total number of cases)

have been much greater in males than in females, and rates of decline (the speed at which the number of cases had decreased) also have been greater in males, but in recent years they have been greater in females. Since 1950 there has been a clear rise and fall in CHD death rates for each racial and gender group. Although the age-adjusted death rate for CHD continues to decline each year, declines in the unadjusted death rate and in the number of deaths have slowed because of an increase in the number of older Americans, who have higher rates of CHD.

A major form of cerebrovascular disease is stroke. Like CHD death rates, stroke death rates have declined over the past 30 years. The rate of decline, however, has slowed in recent years. The overall decline has occurred mainly because of improvements in the detection and treatment of high blood pressure (hypertension).

High blood pressure is known as the "silent killer" and remains a major risk factor for CHD, stroke, and heart failure. High blood pressure is more common in older persons.

ASHA has developed a Consumer Satisfaction survey for audiologists' and speech-language pathologists' use.

Atrial fibrillation (AF) affects close to 2 million people. The number of existing cases of AF increases with age; AF is more common in males than in females. Cases of AF may continue to rise as persons live longer and as more persons survive a first heart attack.

Opportunities

Primary prevention. Heart disease and stroke share several risk factors, including high blood pressure, cigarette smoking, high blood cholesterol, and overweight. Physical inactivity and diabetes are additional risk factors for heart disease. (See Focus Area 5. Diabetes.) Primary prevention, specifically through lifestyle interventions that promote heart-healthy behaviors, is a major strategy to reduce the development of heart disease or stroke. Nationwide mass media campaigns, community-based programs, and other communication efforts should be expanded to give groups better access to information and programs. These programs should promote heart-healthy behaviors at the community level and should detect and treat existing risk factors.

Early identification and treatment. Each year in the United States, about 1.1 million persons experience a heart attack (myocardial infarction). In 1996, 476,000 persons died from heart attacks—about 51 percent were males and 49 percent were females. More than half of these deaths occurred suddenly, within 1 hour of symptom onset, outside the hospital. For those patients who survive, delay in treatment can mean increased damage to the heart muscle and poorer outcomes.

Counseling by health care providers could help to increase awareness of the symptoms and signs of a heart attack or stroke and the appropriate actions to take, such as accessing emergency medical services. It also can help reduce and control factors that increase the risk of a heart attack or a stroke.

Future efforts. Population studies and public outreach are two of the most important areas of future research. Advanced technology allows researchers to screen persons noninvasively and painlessly for signs of developing atherosclerosis. Eventually, when the role of such noninvasive methods in medical practice has been better delineated, magnetic resonance imaging, ultrasound, and others may be used to determine the number of persons in the population who have heart disease or are at risk of developing heart disease.

Public outreach and community health intervention efforts, such as those that encourage persons to lower their high blood pressure or to get their cholesterol checked or to help people stop smoking, are important parts of health care in the United States. Culturally and linguistically appropriate counseling by health care providers is important to those efforts. New coalitions between health care providers and individual communities are forming to focus on the prevention and management of chronic heart disease (CHD) throughout all stages of life. Emerging areas of research include the effect of socioeconomic status on health and access to care; health status in rural populations, which often have low income and education levels; and quality of life as a criterion for evaluating treatment.

Objectives

12-2 (Developmental). Increase the proportion of adults aged 20 years and older who are aware of the early warning symptoms and signs of a heart attack and the importance of accessing rapid emergency care by calling 911.

12-7. Reduce stroke deaths.

12-8 (Developmental) Increase the proportion of adults who are aware of the early warning symptoms and signs of a stroke.

HIV

Co-Lead Agencies: Centers for Disease Control and Prevention (CDC),
Health Resources and Services Administration (HRSA)

Goal: Prevent HIV infection and its related illness and death.

Overview

Beginning in 1981, a new infectious disease, AIDS (acquired immunodeficiency syndrome) was identified in the United States. Several years later, the causative agent of AIDS—human immunodeficiency virus (HIV)—was discovered. Currently, HIV/AIDS has been reported in virtually every racial and ethnic population, every age group, and every socioeconomic group in every State and most large cities in the United States.

Issues

Estimates of the number of people infected with HIV in the United States range from 650,000 to 900,000. The HIV/AIDS subepidemics vary not only by region and community, but also by population, risk behavior, and geography. Disparities in the rate of infection among certain racial and ethnic groups, particularly African American and Hispanic populations, remain a challenge. Recently introduced therapies for HIV/AIDS have reduced illness, disability, and death due to HIV/AIDS; however, access to culturally and linguistically appropriate testing and care may limit progress in this area.

Trends

HIV infection rates appear to have stabilized since the early 1990s at about 40,000 new infections per year, which represents a slowing from growth rates experienced in the mid-1980s. Significant changes in the epidemic have occurred over time, for example:

- In 1992, AIDS became a leading cause of death among persons aged 25 to 44 years, but by 1997 had dropped to the eighth leading cause of death in this age group.

- In 1997, HIV/AIDS remained the leading cause of death only for African Americans among persons in the 25 to 44 years age group.
- Women accounted for just under 14 percent of persons over age 13 years living with AIDS in 1992, compared with 20 percent in 1998.
- By the end of 1998, the number of African Americans living with AIDS, which increased from 33 percent of the AIDS population in 1992 to 40 percent in 1998, was almost identical to the number of whites living with AIDS.

Opportunities

In the 21st century, strategies for reducing HIV/AIDS transmission will continue to evolve and will require shifts from current efforts. Future strategies should focus on:

- Continuing to address the disproportionate impact of HIV/AIDS among certain racial and ethnic groups.
- Enhancing prevention strategies for populations that are particularly high risk, such as injection drug users, homeless persons, runaway youth, mentally ill persons, and incarcerated persons.
- Increasing the number of people who learn their HIV status in order to detect HIV infection when the potential for transmission is greatest and the need for prevention, care, and treatment, including highly active antiretroviral therapy (HAART), is greatest.
- Reaching high-risk seronegative people to help them to stay uninfected.
- Improving access to HAART, thereby reducing deaths and HIV-associated illness and, possibly, infection of others.

Objective

13-1 Reduce AIDS among adolescents and adults.

Injury and Violence Prevention

Lead Agency: Centers for Disease Control and Prevention (CDC)

Goal: Reduce injuries, disabilities, and deaths due to unintentional injuries and violence.

Overview

The risk of injury is so great that most persons sustain a significant injury at some time during their lives. Nevertheless, this widespread human damage too often is taken for granted, in the erroneous belief that injuries happen by chance and are the result of unpreventable “accidents.” In fact, many injuries are not “accidents,” or random, uncontrollable acts of fate; rather, most injuries are predictable and preventable.

Issues and Trends

Injury Prevention

Injuries are often classified on the basis of events and behaviors that preceded them, as well as the intent of the persons involved. For example, many injuries are preceded by alcohol consumption in amounts or circumstances that increase risk of injury. Although the events leading to an intentional and unintentional injury differ, the outcomes and extent of the injury are similar.

Unintentional Injury Prevention

Millions of persons are incapacitated by unintentional injuries, with many suffering lifelong disabilities. These events occur disproportionately among the young and the elderly. Although the greatest impact of injury is in human suffering and loss of life, the financial cost is staggering. Included in the costs associated with injuries are the costs of direct medical care and rehabilitation as well as lost income and productivity. As with other health problems, it costs far less to prevent injuries than to treat them.

Violence and Abuse Prevention

Violence in the United States is pervasive and can change quality of life. Reports of children

killing children in schools are shocking and cause parents to worry about the safety of their children at school. Reports of gang violence make persons fearful for their safety. Intimate partner violence and sexual assault threaten people in all walks of life.

Youths continue to be involved as both perpetrators and victims of violence. The elderly, females, and children continue to be targets of both physical and sexual assaults, which are frequently perpetrated by individuals they know.

Opportunities

To reduce the number and severity of injuries, prevention activities must focus on the type of injury—drowning, fall, fire or burn, firearm, or motor vehicle. For example, a nonfatal spinal cord injury produces the same outcome whether it was caused by an unintentional motor vehicle crash or an attempted suicide.

Understanding injuries allows for development and implementation of effective prevention interventions. Some interventions can reduce injuries from both unintentional and violence-related episodes. For instance, efforts to promote proper storage of firearms in homes can help reduce the risk of assaultive, intentional self-inflicted, and unintentional shootings in the home.

Many potentially effective culturally and linguistically competent intervention strategies for violence prevention exist, such as parent training, mentoring, home visitation, and education. Evaluation of ongoing programs is a major component to help identify effective approaches for violence prevention. The public health approach to violence prevention is multidisciplinary, encouraging experts from various scientific disciplines, organizations, and communities to work together to find solutions to violence in our Nation.

Many school-age children suffer disabling and fatal injuries each year. As educational programs for school children are developed and proven effective in preventing injuries, these programs should be included in quality health education curricula at the appropriate grade level. Education should aim at reducing risks of injury directly and at preparing children to be knowledgeable adults. (See Focus Area 7. Educational and Community-Based Programs.)

15-5. Reduce nonfatal firearm-related injuries.

15-18. Reduce nonfatal pedestrian injuries on public roads.

15-19. Increase use of safety belts.

15-20. Increase use of child restraints.

15-21. Increase the proportion of motorcyclists using helmets.

15-23. (Developmental) Increase use of helmets by bicyclists.

15-24. Increase the number of States and the District of Columbia with laws requiring bicycle helmets for bicycle riders.

Head injuries are the most serious type of injury sustained by pedal-cyclists of all ages. Bicycle helmets reduce the risk of bicycle-related head injury by 85 %. Although no States have bicycle laws that apply to all riders, 15 States have laws that apply to young bicyclists under age 18 years. In addition, several localities have ordinances that require some or all bicyclists to wear helmets. Helmets are important for riders

of all ages, especially because older bicyclists represent two-thirds of bicycle deaths.

15-31 (Developmental) Increase the proportion of public and private schools that require use of appropriate head, face, eye, and mouth protection for students participating in school-sponsored physical activities.

Trauma to the head, face, eyes, and mouth occurs frequently during school-sponsored physical activities. Schools with recreation and sports programs can reduce trauma by requiring students to use appropriate protective gear.

15-38. Reduce physical fighting among adolescents.

15-39 Reduce weapon carrying by adolescents on school property.

Violence prevention programs for youth need to focus on strategies that reduce involvement in physical fighting and discourage weapon carrying on school property. Strategies to reduce weapon carrying on school property, physical fighting, and resulting injuries among youth should begin early in life and must be tailored to youth of widely varying social, economic, cultural, and ethnic backgrounds. Physicians and other health professionals are in a position to provide effective primary prevention messages to youth and their families. Also, Emergency Department (ED) workers treating adolescents with fight-related injuries can practice secondary interventions, as they do with victims of child abuse, sexual assault, or attempted suicide.

Maternal and Infant Health

Co-lead agencies: Centers for Disease Control and Prevention (CDC) and Health Resources and Services Administration (HRSA)

Goal: Improve the health and well-being of women, infants, children, and families.

Overview

The health of mothers, infants, and children is viewed as a reflection of the current health status of a large segment of the population and as a predictor of the health of the next generation.

Issues and Trends

Infant mortality statistics have long been an indicator of health status and social well-being. In 1997, the postneonatal mortality rate was 2.4 per 1000, with four causes responsible for more than half of the deaths: birth defects, disorders relating to short gestation and unspecified low birth weight (LBW), sudden infant death syndrome, and respiratory distress syndrome. LBW is associated with long-term disabilities, such as cerebral palsy, autism, mental retardation, vision and hearing impairments, and other developmental disabilities (see Focus Areas 6 and 28). The uses of alcohol, tobacco, and illegal substances are major contributors to LBW and other poor infant outcomes. Breastfeeding is an important contributor to overall infant health.

Also important to child health are the prevention and treatment of disabilities in children. Twelve percent of all children aged 18 years and under have a disability. In 1994, 10.6% of children aged 5-17 had limitations in learning ability, 6% had limitations in communication, 1.3% had mobility limitations, and 0.9% had limitations in personal care. Asthma and mental retardation account for 40% of all activity limitations. Other major disabling conditions in childhood include speech impairment, hearing impairment, cerebral palsy, epilepsy, and leg impairment.

Adequate screening is the first step toward prevention of illness, disability, and death.

Opportunities

Many of these conditions disproportionately affect certain racial and ethnic groups with wide disparities in infant death, maternal death, and LBW. Good preconception and prenatal care can mitigate these circumstances. Counseling needs to be culturally competent and linguistically appropriate. Interventions include high-quality prenatal care, information regarding effects of and treatment for substance abuse, promotion of folic acid intake, breastfeeding, and prevention of sudden infant death syndrome (SIDs).

Relevant Objectives

16-6: Increase the proportion of pregnant women who receive early and adequate prenatal care.

16-14: Reduce the occurrence of developmental disabilities

Specific targets are set for mental retardation, cerebral palsy, autism spectrum disorder, and epilepsy. Specific developmental disabilities will be monitored among school-age children since not all occurrences are manifested or recognized until those ages.

16-17: Increase abstinence from alcohol, cigarettes, and illicit drugs among pregnant women

16-20: Ensure appropriate newborn bloodspot screening, follow-up testing, and referral to services.

16-22: (Developmental) Increase the proportion of children with special health care needs who have access to a medical home.

Care for children with special health care needs should be provided and coordinated through a “medical home” that is accessible, family-centered, continuous, comprehensive, coordinated, compassionate, and culturally competent and linguistically appropriate. Physicians and parents share responsibility for ensuring that children and their families have access to all the medical and nonmedical services needed to help them achieve their maximum potential. One aspect of a “medical home” includes centralized information and coordinated care links families to support, educational, and community-based services.

16-23: Increase the proportion of territories and states that have service systems for children with special health care needs.

Children with special health care needs and their families often require a range of services. Health services, for example, include health education and health promotion, preventive and primary care, including routine screening for impairments of vision, **hearing, speech, and**

ASHA Guidelines on Audiologic Screening (1997); Joint Committee on Infant Hearing (2000).

language and assessment of physical and psychosocial milestones. Early intervention services are necessary as well, as are educational, vocational and mental health services and support services for children and their families.

Issues of differing eligibility criteria, inflexible funding sources, and poor coordination among service sectors can be resolved only through a system of services. These systems should ensure access to a source of insurance for primary and specialty care and enabling services, an identified medical home, and care coordination.

Medical Product Safety

Lead agency: Food and Drug Administration (FDA)

Goal: Ensure the safe and effective use of medical products.

Overview

Management of medical product risk

Medical product risk falls into 4 categories: (1) product defects; (2) known side effects, both avoidable and unavoidable; (3) medication or device errors; and (4) remaining uncertainties. Managing risk and medical product safety is a matter of continuously developing information and risk communication. The FDA and the USP (U.S. Pharmacopoeia) are expected to provide a nationally projected measure of errors in categories established by the National Coordinating Council for Medication Error Reporting and Prevention. Topics are related to the record practices of health care professionals, and other factors found in this chapter.

Opportunities

Aging of the population and health literacy problems are of concern. A common goal of maximizing benefits and minimizing risks could be greatly advanced if participants work together within an integrated framework. The latter, if adopted, would contribute to improving risk communication and risk confrontation. There is a vast technology for information sharing between different components of health

care if the confidentiality issues can be overcome. One final consideration for effective risk communication is to provide information about medical products that is useful for patients, consumers, and practitioners; disseminated in a timely fashion; and incorporated into clinical practice that is aimed at altering behaviors.

Risk Confrontation involves determining acceptable risk in the context of community-based problem solving that involves stakeholders in the decision-making process. This definition implies that social and community values are at least as important as the technical judgments of professionals and should be included in the determination of acceptable risk. Science provides only a statistical assessment of risk; it cannot determine its acceptability. Affected communities may differ from regulatory agencies in how they value either risks or benefits.

Relevant Objectives

17-1: (Developmental) Increase the proportion of health care organizations that are linked in an integrated system that monitors and reports adverse events.

17-2: (Developmental) Increase the use of linked, automated systems to share information.

Mental Health and Mental Disorders

Co-lead agencies: National Institutes of Health (NIH)
Mental Health Services Administration

Goal: Improve mental health and ensure access to appropriate, quality mental health.

Issues

Mental disorders affect approximately 40 million Americans age 18 to 64 years (22% of the population); at least 1 in 5 children and adolescents between 9 and 17 has a diagnosable mental disorder in a given year. In later life, for those over 65 years of age, 25% (8.6 million) experience specific mental disorders that are not part of normal aging, including depression, anxiety, substance abuse and dementia.

Trends

As recognition continues to grow that depression and certain cognitive losses are treatable disorders and not inevitable concomitants of aging, diagnostic precision in later life and provision of targeted treatment are increasingly urgent. Mental disorders can be a secondary problem among people with other disabilities; for example, depression and anxiety are more common.

18-4: Increase the proportion of persons with serious mental illnesses who are employed.

18-7: Increase the proportion of children with mental health problems who receive treatment.

18-8: Increase the proportion of juvenile justice facilities that screen new admissions for mental health problems.

18-9: Increase the proportion of adults with mental disorders who receive treatment.

18.9b. Increase the proportion of adults with recognized depression who receive treatment.

18-14: Increase the number of states and territories, and the District of Columbia with an operational mental health plan that addresses mental health crisis interventions, ongoing screening, and treatment services for older persons.

Occupational Safety and Health

Lead agency: Centers for Disease Control and Prevention (CDC)

Goal: Promote the health and safety of people at work through prevention and early intervention.

Overview

The toll of workplace injuries and illnesses is significant: every 5 seconds a worker is injured; every 10 seconds a worker is temporarily or permanently disabled.

Issues

The National Occupational Research Agenda of the National Institute of Occupational Safety and Health released in 1996 guides occupational safety and health research. The NORA process (in which ASHA played a part) resulted in a consensus of the top 21 research priorities for occupational safety and health, including hearing loss. Intervention effectiveness research will evaluate the impact of occupational prevention interventions, programs, and policies on safety and health outcomes across a broad spectrum of industries.

Trends

No national occupational chronic disease or death reporting system currently exists.

Opportunities

The U. S. workforce, 147 million by 2005, is increasingly diverse and more rapidly exposed to innovative work restructuring and new technologies. The NORA strategic plan will ensure that research addresses the emerging work environment.

Relevant Objectives

20-2: Reduce work-related injuries resulting in medical treatment, lost time from work, or restricted work activity.

20-11: (Developmental) Reduce new cases of work-related, noise-induced hearing loss.

Public Health Infrastructure

Co-lead Agencies: Centers for Disease Control (CDC), Health Resources and Services Administration (HRSA)

Goal: Ensure that Federal, Tribal, State, and local agencies have the infrastructure to provide essential public health services effectively.

Issues and Trends

The Nation's public health structure has three components: people who work in the field of public health; the information and communication systems used in collecting and disseminating accurate data; and the public health organizations at the State and local levels that are in the front lines of public health. Reports and evaluations indicate deterioration of the national public health system (examples are provided) at the same time that public health improvement plans are evolving.

A strong public health infrastructure provides capacity to prepare for and respond to acute and chronic threats to the Nation's health; comprises data and information systems, the work force, and public health organizations; contains research as a key activity; and has a knowledgeable and up-to-date public health workforce.

In the second half of the decade, national data collection will urge collection of Standard Occupational Classification (SOC) data to categorize public health personnel on a federal, state, tribal, and local basis.

Disparities

Lack of data collection limits the ability to collect data on the HP 2010 goal of "eliminating health disparities." Concern is noted about recruiting and training a diverse, highly skilled workforce with salary structures and disparities across jurisdictions, and between workers in the public and private sectors, that affect the ability to recruit and retain a high-quality workforce.

Opportunities

Five areas are identified to assure a stronger public health workforce: national leadership; State and local leadership; workforce composition; curriculum development; and distance learning. The SOC will continue to be used in a number of population- and employer-based surveys by the Bureau of Labor Statistics

and the Bureau of Health Professions. A standard classification may be useful in determining minimum levels of competency for each classification.

Relevant Objectives

23-1: Increase public health employees' access to and use of the Internet and other electronic information systems to apply data and information to public health practice.

23-4: Increase the proportion of population-based HP 2010 objectives for which national data are available for all population groups identified for the objective.

Better data-gathering systems are needed to track health objectives for such populations as racial and ethnic groups, persons with disabilities, specific Tribes, homeless persons, institutionalized persons (for example, in nursing homes and prisons), low-income persons, and students in special education. To assess progress toward this goal, data on population groups must be available.

23-5: Increase the proportion of Leading Health Indicators, Health Status Indicators, and Priority Data Needs for which data _especially for select populations _ are available at the Tribal, State, and local levels.

23-7: Increase the proportion of HP 2010 objectives that are tracked regularly at the national level.

23-8: (Developmental) Increase the proportion of Federal, Tribal, State, and local agencies that incorporate specific competencies in the essential public health services into personnel systems.

In addition to a basic knowledge of public health, all public health workers should have specific competencies in their areas of specialty, interest, and responsibility. The workforce needs to know how to use information technology effectively. A skilled workforce must be culturally and linguistically competent to understand the needs of and deliver services to select populations and to have sensitivity to diverse populations.

National licensing and certification programs that measure competency already exist for many allied health professions. Coordination with national certification and licensing programs will be important to ensure that new certification efforts cover essential public health service concerns, such as how to use information technology effectively, cultural and linguistic competency, technical competency in biostatistics, prevention practices, etc.

23-9: (Developmental) Increase the proportion of schools for public health workers that integrate into their curricula specific content to develop competency in the essential public health services.

23-10: (Developmental) Increase the proportion of Federal, Tribal, State, and local public health agencies that provide continuing education to develop competency in essential public health services for their employees.

23-11: (Developmental) Increase the proportion of State and local public health agencies that meet national performance standards for essential public health services.

Without standard performance indicators and systematic comparisons, public health lacks useful benchmarks for improvement. National performance standards could be used to improve quality, increase accountability for dollars invested, and create credibility with internal and external constituents. Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and National Committee on Quality Assurance (NCQA) have models that can be followed in conjunction with state and local health departments. CDC is developing standards in conjunction with state and local health departments.

23-12: Increase the proportion of Tribes, States, and the District of Columbia that have a health improvement plan and increase the proportion of local jurisdictions that have a health improvement plan linked with their state plan.

See ASHA's Prevention Curriculum Guide (in press).

23-16: (Developmental) Increase the proportion of Federal, Tribal, State, and local agencies that gather accurate data on public health expenditures, categorized by essential public health services.

Measuring investment in essential services must be integrated into existing data collection strategies and emerging initiatives.

23-17: Increase the proportion of Federal, Tribal, State, and local public health agencies that conduct or collaborate on population-based prevention research

Opportunities and incentives should be provided to attract new researchers and to encourage collaboration among Federal agencies, States, local communities, and academic institutions. These efforts should result in a research agenda for the Nation's public health infrastructure. Population-based prevention and clinical research must continue to include specific population groups, such as females, racial and ethnic groups, and persons who are either not served or underserved.

Vision and Hearing

Lead agency: National Institutes of Health (NIH)

Goal: Improve the visual and hearing health of the Nation through prevention, early detection, treatment, and rehabilitation.

Overview

Among the five senses, people depend on vision and hearing to provide the primary cues for conducting the basic activities of daily life. At the most basic level, vision and hearing permit people to navigate and to stay oriented within their environment. They provide the portals for language, whether spoken, signed, or read. They are critical to most work and recreation and allow people to interact more fully. For these reasons, vision and hearing are defining elements of the quality of life. Either, or both, of these senses may be diminished or lost because of heredity, aging, injury, or disease. Such loss may occur gradually over the course of a lifetime, or traumatically in an instant.

Conditions of vision or hearing loss that are linked with chronic and disabling diseases pose additional challenges for patients and their families. From the public health perspective, the prevention of either the initial impairment or additional impairment from these environmentally orienting and socially connecting senses requires significant resources. Prevention of vision or hearing loss or their resulting disabling conditions through the

development of improved disease prevention, detection, or treatment methods or more effective rehabilitative strategies must remain a priority.

Hearing: Issues and Trends

An estimated 28 million people in the United States are deaf or hard of hearing.¹⁸ Some 1,465,000 individuals aged 3 years or older are deaf in both ears.¹⁹ Deafness or hearing impairment may be caused by genetic factors, noise or trauma, sensitivity to certain drugs or medications, and viral or bacterial infections.

Language is the set of rules that allow for the sharing of thoughts, ideas, and emotions. Speaking is one way that language can be expressed. Language is also expressed in writing or through sign language by some groups of individuals. In some cases, language can be expressed in additional ways by people who have neurological disorders. The most intensive period for development of language, either spoken or signed, is during the first 3 years of life, the period when the brain is developing and maturing. The skills associated with effective acquisition of language, either speech or sign, depend on exposure to, and manipulation of, these communication tools. Early identification of deafness or hearing loss is a critical factor in

preventing or ameliorating language delay or disorder in children who are deaf or hard of hearing, and allows appropriate intervention or rehabilitation to begin while the developing brain is ready. Early identification and intervention have lifelong implications for the child's understanding and use of language.

The standard estimate of congenital hearing loss (1 in 1,000 live births) appears to underestimate actual congenital hearing loss as reported in data from States with universal newborn screening programs. Estimates based on emerging data place the number at 2 to 3 per 1,000 live births.²⁰ These data do not include children who are born with normal hearing but have late-onset or progressive hearing loss. Hearing loss often is sufficient to prevent the spontaneous development of spoken language.^{21, 22, 23, 24} More than 50% of childhood hearing impairments are believed to be of genetic origin.²⁵ Earliest possible identification of infant hearing loss has been endorsed widely as critical for the developing child. Minimal hearing loss also is an important factor in school success and psychosocial development.²⁶

Estimates for the average age of diagnosis of hearing loss in infants and children range from 14 months to around 3 years.²⁴ This delay of diagnosis is significant in terms of time lost for rehabilitation and time lost during unique opportunities provided by brain development in the infant and young child for language acquisition, spoken or signed. A total of 14.9% of children have a low-frequency or high-frequency hearing loss.²⁸ Strategies for intervention or rehabilitation depend on the kind of hearing loss, age of onset, services available, and family preferences. Strategies include hearing aids, augmentative and assistive devices, oral-auditory instruction, sign language instruction, interpreter services, cued speech, cochlear implant, or combinations of these devices and strategies.

More than 300 inherited syndromes involve hearing impairment^{29, 30} Hereditary hearing loss can be either syndromic (accompanied by other characteristics, such as visual impairment) or nonsyndromic (hearing loss is the only identifiable characteristic). Not all hereditary

hearing loss is present at birth. Some hereditary hearing loss may be progressive or may appear later in childhood or adulthood as late-onset hearing impairment or deafness. One cause of late-onset hearing loss is otosclerosis. Otosclerosis, an abnormal growth of bone in the middle ear, results in gradual loss of hearing and affects 1 of 100 adults in the U.S. population. Another form of hearing loss is Meniere's disease,³¹ which causes bilateral, often fluctuating, hearing loss in 20 to 40% of cases, usually in conjunction with balance disorder and tinnitus.

Otitis media, or middle ear infection, accounts for 24.5 million visits to doctors' offices³² and is the most frequent reason cited for taking children to the emergency department.³³ Health care costs for otitis media in the United States have been reported to be \$3 billion to \$5 billion per year.³⁴ Otitis media often occurs in repeated bouts, causing periods of hearing loss that can affect children during the critical time for language and speech acquisition and can hamper children in a variety of learning environments.

Approximately 10 million Americans have permanent, irreversible hearing loss from noise or trauma.³⁵ Additionally, 30 million people are estimated to be exposed to injurious levels of noise each day. Noise-induced hearing loss is the most common occupational disease and the second most self-reported occupational illness or injury.³⁶ In industry-specific studies, 44% of carpenters and 48% of plumbers reported they had a perceived hearing loss,³⁷ 90% of coal miners are estimated to have a hearing impairment by age 52 years,³⁸ and 70% of male metal and nonmetal miners will experience a hearing impairment by age 60 years.³⁹ (See Focus Area 20. Occupational Safety and Health.)

Data indicate that people are losing hearing earlier in life and that men are more frequently affected in the 35- to 60-year-old age group.⁴⁰ Noise-induced hearing loss can be the result of a traumatic, sudden level of impulse noise, such as an explosion, that can leave an individual immediately and permanently deafened; the result of continuing exposure to high levels of sound in the workplace or in recreational

settings; the consequence of years of exposure causing subtle, progressive damage; or exacerbated due to individual vulnerability to noise. Noise-induced hearing loss is related to noise level, proximity to the harmful sound, time of exposure, and individual susceptibility. Many of these causes can be controlled by prevention. Prevention of noise-induced hearing loss is necessary for people both on and off the job.

Disparities

The work environment of the 21st century will require intense use of communication and information skills and technologies. The individual who has a communication disability, disorder, or difference will be at a disadvantage.

Data show that students with disabilities, including hearing impairment and deafness, are disproportionately disadvantaged.⁴¹ The average reading level for deaf persons aged 18 years is estimated at the 4th grade.⁴² Early intervention for language acquisition, spoken or signed, can improve later ability to use language. Hearing impairments also are a major barrier to health care access and information.^{43,44} (See Focus Area 6. Disability and Secondary Conditions.)

Older people also are a major concern in terms of hearing health disparity. Presbycusis, the loss of hearing associated with aging, affects about 30% of adults who are age 65 years and older.⁴⁵ About half of the population over age 75 years has a significant hearing loss.⁴⁶ As the population ages and lives longer, these numbers are increasing. Only about one-fourth of those who could benefit from a hearing aid actually use one.⁴⁷ More than 8% percent of the population age 70 years and older report both hearing and vision impairment.⁴⁸ With the exception of increased hearing loss in men, there are no currently available data on these disparities.

Opportunities

Two activities have yielded opportunity for early identification and intervention for infants who are born deaf or with hearing impairments. As of 1999, 20 States are adding laws that require hearing screening in the newborn

nursery. Early identification allows for language acquisition, either spoken or signed, during the critical time period when the child is developing communication skills. Research in the field of molecular genetics has identified genes that contribute to hereditary hearing impairment. The potential exists for early identification and intervention for hearing impairment. Identifying people who may experience late-onset or progressive hearing loss provides time to make the appropriate treatment or rehabilitation options available.

Public education can promote hearing health and behavior to reduce noise-induced hearing loss, which is a fully preventable condition. An education effort, WISE EARS!,⁴⁹ has been launched by a coalition of government agencies headed by the National Institute on Deafness and Other Communication Disorders at the National Institutes of Health and the National Institute on Occupational Safety and Health at the Centers for Disease Control and Prevention. They have joined with State agencies; some 60 public interest, advocacy, and patient organizations; businesses; industries; unions; and health professional organizations in a national effort to educate the public about ear defense. The education effort focuses both on the public, with special emphasis on children, and on the workforce and has important Web-based components.

A further opportunity exists with noise-induced hearing loss prevention. Tinnitus, a ringing, buzzing, or roaring in the ears, is a symptom that accompanies many forms of hearing loss and can be debilitating. Data indicate that tinnitus affects almost 15% of adults age 45 years and older.⁵⁰ Because tinnitus often is associated with preventable noise-induced hearing loss, hearing protection is key to reducing one important cause of tinnitus.

Assistive technologies provide additional strategies for individuals with disabilities. For individuals who are deaf or hard of hearing, improved technologies will facilitate their ability to have an equal opportunity in the workplace and in society. (See Focus Area 6. Disability and Secondary Conditions.) Early identification for

