MODULE
3

OVERCOMING COMMUNICATION BARRIERS

MODULE OVERVIEW

Being able to communicate effectively—or to participate in the exchange of information—is an essential skill for dental health care providers. For many dental health care providers in the United States and Canada, providing patient-centered care involves learning to communicate effectively with patients even when various barriers to communication are present.

This module presents strategies for effectively communicating with:

- Patients who speak a different language than that of the dental health care provider
- Patients with culturally influenced health behaviors that differ from the health care beliefs of the dental clinician
- Young and school age children
- Adolescents
- Older adults
- Children with attention deficit hyperactivity disorder
- Patients who are deaf, blind, or unable to speak
- Patients with disabilities

MODULE OUTLINE

KEY TERMS

Cultural competency • Low vision • Service animal • Presbycusis • Dysarthria • Aphasia • Laryngectomy • Patients with special needs • People-First language • Intellectual/cognitive disability • Down syndrome • Attention deficit hyperactivity disorder (ADHD) • Autism spectrum disorder • Cerebral palsy

OBJECTIVES

- Describe some of the changes in the population of North America during the last few decades and explain how these changes can affect dental health care.
- Give an example of how cultural differences could affect communication.
- Define cultural competence.
- Discuss effective communication techniques for interacting with patients from different cultures.
- Explore how cultural variables impact the delivery of health care services.
- Discuss strategies that health care providers can use to improve communication with children.
- Discuss strategies that health care providers can use to improve communication with adolescents.
- Discuss strategies that health care providers can use to improve communication with older adults.
- Discuss strategies that health care providers can use to improve communication with children with attention deficit hyperactivity disorder (ADHD).
- Discuss strategies that health care providers can use to improve communication with patients who are blind, deaf, or unable to speak.
- Discuss strategies that health care providers can use to improve communication with patients who have a disability or special health care need.

SECTION 1 • Language Barriers

Cross-Cultural Communication

MULTICULTURALISM

1. **Ethnic and Cultural Diversity.** North American communities are becoming increasingly diverse in their ethnic and cultural makeup. This increasingly diverse cultural makeup means that strategies need to be developed to ensure that all segments of the population are receiving the oral health care that they need.[1–5]
   a. Findings from the "Unequal Treatment" report in the United States indicated that health care providers might contribute to ethnic health disparities because of prejudice, stereotyping, and lack of knowledge regarding how to provide care to diverse ethnic populations.[6–8]
   b. In Canada, the report "Building on Values: The Future of Health Care in Canada" identifies ethnic minorities as populations whose health is at greatest risk.[9]
   c. Factors that contribute to health disparities are ethnicity, socioeconomic status, gender, level of education, and age.[1–5] These same factors contribute to oral health disparities in dental caries rates, periodontal disease, tooth loss, oral cancer, and tobacco use.[1]
2. **Non-English-Speaking Communities.** For many dental health care providers in North America, providing patient-centered care involves learning to communicate effectively with patients from non-English-speaking communities and with cultural backgrounds that may be unfamiliar (Table 3-1).
   a. The United States has always had a significant foreign-born population, but the number of foreign born reached an all-time high of 32.5 million in 2002—equal to 11.5% of the U.S. population—according to the Current Population Survey (CPS).[10] By the year 2030, the United States Census Bureau predicts that 60% of the U.S. population will self-identify as White, non-Hispanic, and 40% will self-identify as members of other diverse racial and ethnic groups.
   b. The Canadian 2001 population census indicates that 18.5% of the population in Canada is foreign-born.
   c. More than one-half of the 2002 foreign-born residents in the United States were born in Latin America—with 30% from Mexico alone. Among foreign-born residents in the United States, 26% were born in Asia, 14% in Europe, and 8% from Africa and other regions.
   d. Data from the 2000 census show that over 47 million persons speak a language other than English at home, up nearly 48% since 1990. Although the majority are able to speak English, over 21 million speak English less than "very well," up 52% from 14 million in 1990.[11,12]
   e. Communication problems can easily occur if a patient is not fluent in English. An individual who is just learning the language may communicate well in everyday situations, but in the dental setting, however, the same person may not fully understand what is being discussed.
   f. Being competent to meet the communication challenge created by a multicultural population requires a set of skills, knowledge, and attitudes that enable the clinician to understand and respect patients' values, beliefs, and expectations.

TABLE 3-1 U.S.-BORN AND FOREIGN-BORN POPULATION, 1980 TO 2000[11,12]

	U.S.-Born	Foreign-Born
Number in millions		
1980	226.5	14.1
1990	248.7	19.8
2000	281.4	31.1
Percent change		
1980–1990	9.8	40.4
1990–2000	13.1	57.1

MINORITY POPULATIONS IN THE UNITED STATES

According to the United States Census Bureau,[10,11] the proportion of the overall population in the United States considered to be minority will increase from 26.4% in 1995 to 47.2% in 2050. Figure 3-1 shows the racial distribution of current U.S. population. Figure 3-2 shows the percentage increases in each racial minority group that occurred between 2000 and 2010 in the United States.

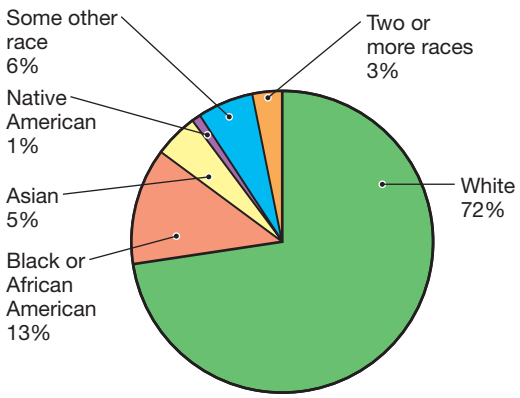

FIGURE 3-1 Current U.S. population reported by race. This pie chart shows the approximate current U.S. population reported by race as summarized from the 2010 United States Census.[13]

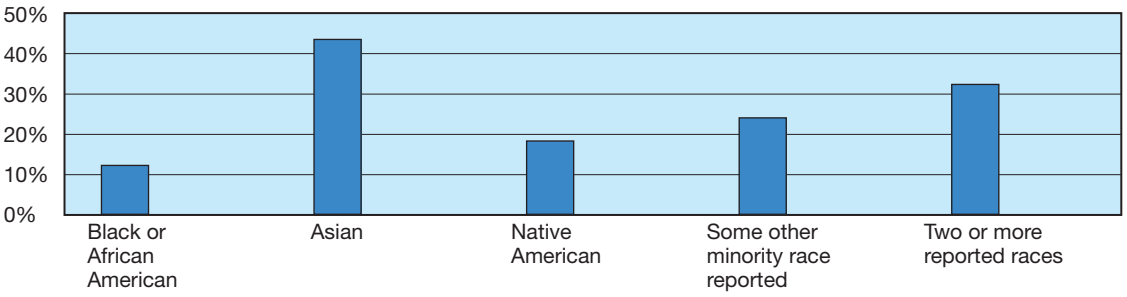

FIGURE 3-2 Percentage increases of minorities reported by race in U.S. national population between 2000 and 2010. The chart shows the approximate percentage increases of racial minority populations in the U.S. population as summarized from the 2010 United States Census.[13]

THE HISPANIC POPULATION IN THE UNITED STATES

- Hispanics are the largest minority ethnic group in the United States, and this group continues to grow in number; as reported in the 2010 United States Census, the Hispanic population increased by 43.0% between 2000 and 2010 (Fig. 3-3).
- Among all Hispanics living in this country, 62% are native born and 38% are foreign born.
- Currently in the United States, the Hispanic population makes up 16.3% of the overall population (Fig. 3-4). Geographically, there are a number of areas—particularly in the South and West—that have much larger Hispanic populations.
- English language skills vary throughout the U.S. Hispanic population, and developing strategies for communicating with Hispanics who have limited skills in English is an important goal for all health care providers in the United States.

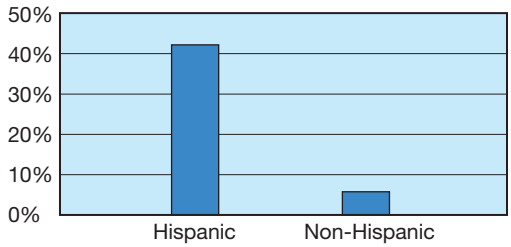

FIGURE 3-3 Percentage increase in Hispanic and non-Hispanic populations in the United States between 2000 and 2010. This chart shows the approximate percentage increases in the Hispanic and non-Hispanic populations in the United States from 2000 to 2010 as summarized from the 2010 United States Census.[14]

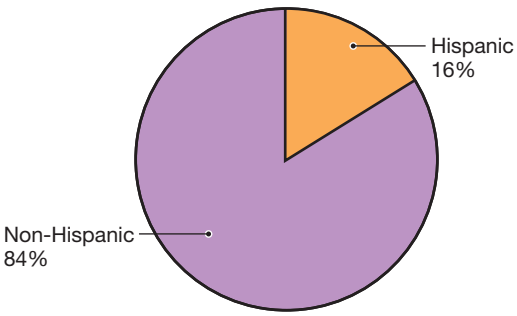

FIGURE 3-4 Current distribution between Hispanic and non-Hispanic populations in the United States. The pie chart depicts the approximate current U.S. population—Hispanic versus non-Hispanic—as reported from the 2010 United States Census.[14]

Cultural Competence

Cultural competency is the application of cultural knowledge, behaviors, interpersonal skills, and clinical skills to enhance a dental health care provider's effectiveness in managing patient care.

- Cultural competence indicates an understanding of important differences that exist among various ethnic and cultural groups in our country.
- Understanding patients' diverse cultures—their values, traditions, history and institutions—is not simply political correctness. It is essential in providing quality patient care.
- Culture shapes individuals' experiences, perceptions, decisions, and how they relate to others. It influences the way patients respond to dental services, preventive interventions, and impacts the way dental health care providers deliver dental care.
- In a culturally diverse society, dental professionals need to increase their awareness of and sensitivity toward diverse patient populations and work to understand culturally influenced health behaviors. Box 3-1 outlines actions to develop cultural competence.

BOX 3-1

Ways to Develop Cultural Competence

- Recognize your own assumptions.
- Value diversity. Demonstrate an appreciation for the customs, values, and beliefs of people from different cultural and language backgrounds.
- Demonstrate flexibility. Carry out changes to meet the needs of your diverse patients.
- Communicate respect. Do not judge. Show empathy.

CULTURAL DIFFERENCES

Dental professionals interact with people from varied ethnic backgrounds and cultural origins who bring with them beliefs and values that may differ from the care provider's own.

- Understanding cultural differences can aid communication and thereby improve patient care.
- Preconceived ideas about a given culture can hinder a clinician from providing good care.
- Each patient is unique, and his or her dental care needs differ. Some cultures may be offended by the intensely personal questions necessary for a health history and may perceive them as an inexcusable invasion of privacy.
- People of various backgrounds also perceive the desirability of making direct eye contact differently.
- To help avoid miscommunication and offending patients, dental health care providers must be sensitive to these cultural differences.

TIPS FOR IMPROVING CROSS-CULTURAL COMMUNICATION

Cross-cultural communication is about dealing with people from other cultures in a way that minimizes misunderstandings and maximizes trust between patients and health care providers. The following simple tips will improve cross-cultural communication.

1. **Speak slowly, not loudly.** Slow down and be careful to pronounce words clearly. Do not speak loudly. A loud voice implies anger in many cultures. Speaking loudly might cause the patient to become nervous. Use a caring tone of voice and facial expressions to convey your message.
2. **Separate questions.** Try not to ask double questions. Let the patient answer one question at a time.
3. **Repeat the message in different ways.** If the patient does not understand a statement, try repeating the message using different words. Be alert to words that the patient understands and use them frequently.
4. **Avoid idiomatic expressions or slang.** American English is full of idioms. An idiom is a distinctive, often colorful expression whose meaning cannot be understood from the combined meaning of its individual words, for example, the phrase "to kill two birds with one stone."
5. **Avoid difficult words and unnecessary information.** Use short, simple sentences. Do not overwhelm the patient with too many facts and lengthy, complicated explanations.
6. **Check meanings.** When communicating across cultures never assume that the other person has understood. Be an active listener. Summarize what has been said in order to verify it. This is a very effective way of ensuring that accurate cross-cultural communication has taken place.

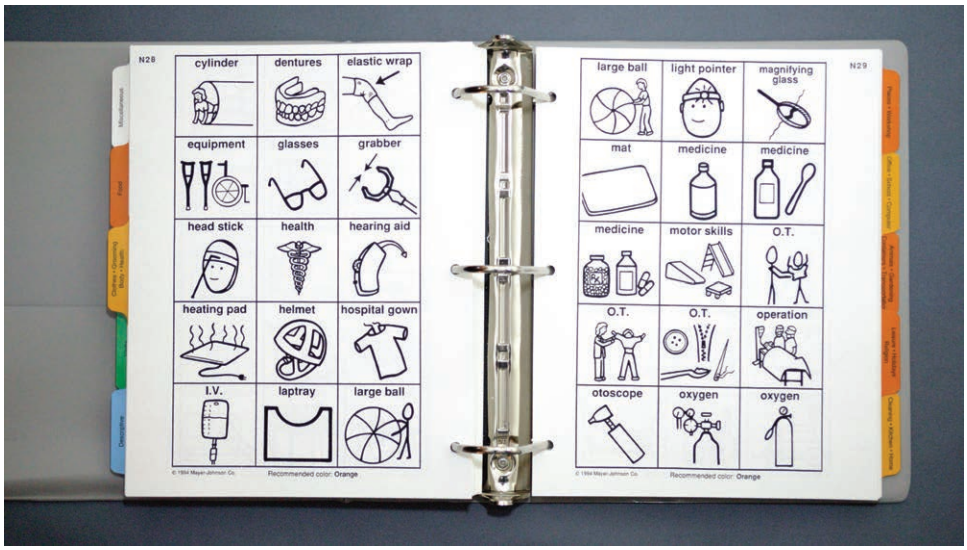

FIGURE 3-5 Picture board. A picture board can be used to communicate when pictures are more effective than words. (From Carter PJ, Lewsen S. *Lippincott's Textbook for Nursing Assistants*. Philadelphia, PA: Lippincott Williams & Wilkins; 2005.)

7. **Use visuals where possible.** A picture really is worth a thousand words; the universal language of pictures can make communication easier. Picture boards (Fig. 3-5) with medical/dental images are helpful in getting your message across.
8. **Avoid negative questions.** For example, "So then, you don't want an appointment on Monday?" A better question would be "What day of the week is best for you?" Questions with negative verbs such as "don't" or "can't" are particularly confusing to Asian patients.
9. **Take turns.** Give the patient time to answer and explain his or her response.
10. **Be supportive.** Giving encouragement to those with weak English skills gives them confidence and a trust in you.
11. **Use humor with caution.** In many cultures, health care is taken very seriously. Some foreign-born patients may not appreciate the use of humor or jokes in the dental office setting.
12. **Watch for nonverbal cues.** Be attentive for signs of fear, anxiety, or confusion in the patient.
13. **Use interpreters to improve communication.** If the patient speaks no English or has limited understanding, use a trained clinical interpreter who is fluent in the patient's native language as well as in medical and dental terminology. When using an interpreter, speak directly to the patient rather than to the interpreter.
14. **Don't use family members as translators.** A family member who is not knowledgeable in medical and dental terminology is likely to translate your message incorrectly. The presence of a family member or friend may also constitute a serious breach of patient confidentiality.
15. **Ask permission to touch the patient.** Ask permission to examine the patient and do not touch the patient until permission is granted.
16. **Check for understanding.** Ask the patient to repeat instructions. Correct any misunderstandings. This can be done diplomatically by saying something like "Will you repeat the instructions that I gave you to make sure that I did not forget anything?"
17. **Provide written material.** When possible, provide simple, illustrated materials for the patient to take home.

SECTION 2 • Age Barriers

Young children, adolescents, and older patients present unique communication concerns. Even experienced health care providers can find it challenging to communicate effectively with individuals who are much younger or older in age. It can be difficult to relate to the life experiences or health problems of someone who is 30 or 40 years older. Some health care providers with limited experience with young children find it difficult to know what to say and what not to say when speaking with young children. Children and adolescents frequently are accompanied to the office by a parent. An adult child or caregiver may accompany older adults. Parents, adult children, and caregivers add a unique aspect to the communication process. The patient should always be the focus of the clinician's attention and, where possible, information is exchanged directly with the patient. Suggestions for communicating with children, adolescents, and older adults are outlined in Box 3-2, Box 3-3, and Box 3-4.

Communicating with Children and Adolescents

BOX 3-2

Strategies for Communicating with Children

- Introduce yourself to the child. Speak softly; use simple words and the child's name.
- Adjust your height to that of the child.
- Treat children with respect—over the age of 4 years, they can understand a lot.
- Describe actions before carrying them out.
- Make contact with the child (e.g., "I promise to tell you everything I'm going to do if you'll help me by cooperating.").
- Talk to young children throughout the assessment procedure.
- Give praise during each stage of the assessment, such as "that's good," "well done," etc.
- Be aware of needs and concerns that are unique to children. For example, children may avoid wearing orthodontic headgear due to pressures and comments from peers.
- Do not ask the child's permission to perform a procedure if it will be performed in any case.
- Do not talk about procedures that will be done later in the appointment to children who are younger than 5 years of age. Very young children have no clear concept of future events and will imagine the worst about what could happen.
- Communicate all information directly to the child or to both child and parent, ensuring that the child remains the center of your attention. If complex information must be communicated to the parent, arrange to speak to the parent alone (without the child's presence).

BOX 3-3

Strategies for Communicating with Teens

- Speak in a respectful, friendly manner, as to an adult.
- Respect independence; address the teenager directly rather than the parent.
- Obtain health history information directly from the teenager, rather than the parent, if possible.
- Recognize that a teenager may be reluctant to answer certain questions honestly in the parent's presence.
- Ask questions about tobacco, drug, or alcohol use privately.
- Some teenagers may be intensely shy or self-conscious; others may be overconfident and boastful. Allow silence so that the teenager can express opinions and concerns.

Communicating with Older Adults

The U.S. population is aging at a dramatic rate. The U.S. population of persons 65 years and older will increase by 76% from 2010 to 2030. The number of persons 85 years and older in the United States will increase by 116% from 2010 to 2030. This tremendous demographic shift will have a profound effect on the health care sector. Over the next 50 years or so, there will most likely be an increased demand for dental health care providers skilled in caring for the geriatric population. Communicating with older people often requires extra time and patience because of physical, psychological, and social changes of normal aging. Communicating with older adults requires many of the same rules as for children—the patient should always be the focus of the dental health care provider's attention.

BOX 3-4

Strategies for Communicating with Older Adults

- Before you begin your conversation, reduce background noises that may be distracting (close the treatment room door; move from a noisy reception area to a quieter place).
- Begin the conversation with casual topics such as the weather or interests of the person.
- Keep your sentences and questions short. Avoid quick shifts from topic to topic.
- Allow extra time for responding. As people age, they function better at a slower pace; do not hurry them.
- Take time to understand the patient's true concerns. Some older people will hold back information feeling that nothing can be done or not wanting to "waste your time."
- Take time to explain in easy-to-understand language the findings of your examination.
- Look for hints from eye gaze and gestures that your message is being understood.
- Speak plainly and make sure that the patient understands by having him or her repeat instructions. For example, say, "I may have forgotten to tell you something important. Would you please repeat what I told you?"

SECTION 3 • Vision and Hearing Barriers

Communication with People Who Are Blind or Have Low Vision

According to the National Eye Institute, 1.3 million Americans are blind and 2.9 million Americans have low vision.[15] **Low vision** means that even with corrective lenses and/or medical treatment, people have difficulty performing everyday tasks. Box 3-5 presents suggestions for effective communication with a person who is blind or has low vision.

BOX 3-5 Strategies for Communicating with a Person Who Is Blind or Has Low Vision

- As soon as you enter the room, be sure to greet the person. This alerts the person to your presence, avoids startling him or her, and eliminates uncomfortable silences. Address the person by name, so he or she will immediately know that you are talking to him or her rather than someone who happens to be nearby. When greeting a person who is blind or has low vision, do not forget to identify yourself. For example, "Hello, Mrs. Jones. I am Robin Shiffer, the dental hygienist here in Dr. Rolfs' office."
- Speak directly to person who is blind, not through an intermediary, such as a relative or caregiver.
- Speak distinctly, using a natural conversational tone and speed. Unless the person is hard of hearing, you do not need to raise your voice.
- Explain the reason for touching the person before doing so.
- Be an active listener. Give the person opportunities to talk. Respond with questions and comments to keep the conversation going. A person who has low vision cannot necessarily see the look of interest on your face, so give verbal cues to let him or her know that you are actively listening.
- Always answer questions and be specific or descriptive in your responses.
- Orient the person to sounds in the environment. For example, explain and demonstrate the sound that an ultrasonic instrument makes before using it in the patient's mouth.
- Tell the patient when you are leaving the room and where you are going (i.e., "I am going to develop the x-rays that we just took.").
- Be precise and thorough when you describe people, places, or things to someone who is blind. Do not leave out things or change a description because you think it is unimportant or unpleasant.
- Feel free to use words that refer to vision during the course of a conversation. Vision-oriented words such as look, see, and watching TV are a part of everyday verbal communication. Making reference to colors, patterns, designs, and shapes is perfectly acceptable. The word *blind* is also acceptable in conversation.
- Indicate the end of a conversation with a person who is blind or has low vision to avoid the embarrassment of leaving the person speaking when no one is actually there.
- When you speak about someone with a disability, refer to the person and then to the disability. For example, refer to "a person who is blind" rather than to "a blind person."

Providing Directions to People Who Are Blind or Have Low Vision

When giving directions from one place to another, people who are not blind tend to use gestures—pointing, looking in the direction referred to, etc.—at least as much as they use verbal cues. That is not helpful to a person who is blind or has low vision. And often, even verbal directions are not precise enough for a person who cannot see—for example, "It's right over there" or "It's just around the next corner." Where is "there"? Where is "the next corner"? In the dental office, you might say something like "Walk along the wall to your left past three doorways. The room that we want is at the fourth doorway; make a sharp turn to the right to enter the room."

The Americans with Disabilities Act (ADA) prohibits businesses that serve the public from banning service animals. A **service animal** is defined as any guide dog or other animal that is trained to provide assistance to a person with a disability. The animal does not have to be licensed or certified by the state as a service animal. The service animal should not be separated from its owner and must be allowed to enter the treatment room with the patient. The ADA law supersedes local health department regulations that ban animals in health care facilities. Box 3-6 provides suggestions for useful techniques when acting as a sighted guide for a person who is blind or has low vision.

BOX 3-6

Acting as a Sighted Guide

Sighted guide technique enables a person who is blind to use a person with sight as a guide. The technique follows a specific form and has specific applications.

- Offer to guide a person who is blind or has low vision by asking if he or she would like assistance. Be aware that the person may not need or want guided help; in some instances, it can be disorienting and disruptive. Respect the wishes of the person you are with.
- If your help is accepted, offer the person your arm. To do so, tap the back of your hand against the palm of his or her hand. The person will then grasp your arm directly above the elbow. Never grab the person's arm or try to direct him or her by pushing or pulling.
- Relax and walk at a comfortable normal pace. Stay one step ahead of the person you are guiding, except at the top and bottom of stairs. At these places, pause and stand alongside the person. Then resume travel, walking one step ahead. Always pause when you change directions, step up, or step down.
- It is helpful, but not necessary, to tell the person you are guiding about stairs, narrow spaces, elevators, and escalators.
- The standard form of sighted guide technique may have to be modified because of other disabilities or for someone who is exceptionally tall or short. Be sure to ask the person you are guiding what, if any, modifications he or she would like you to use.
- When acting as a guide, never leave the person in "free space." When walking, always be sure that the person has a firm grasp on your arm. If you have to be separated briefly, be sure the person is in contact with a wall, railing, or some other stable object until you return.
- To guide a person to a seat, place the hand of your guiding arm on the seat. The person you are guiding will find the seat by following along your arm.

Communication with People Who Are Deaf or Hard of Hearing

An estimated 30 million or 12.7% of Americans 12 years and older had bilateral hearing loss from 2001 to 2008, and this estimate increases to 48.1 million or 20.3% when also including individuals with unilateral hearing loss. Approximately 15% of American adults (37.5 million) report some trouble hearing.[16–18] In describing hearing loss, people who are hard of hearing may say that they can hear sounds but cannot understand what is being said. For many people who are hard of hearing, low-frequency speech sounds such as "a," "o," and "u" may be clearly heard, while other high-frequency sounds such as "s," "th," and "sh" may be much less distinct. In this situation, speech is heard but often misunderstood. "Watch" may be mistaken for "wash" and "pen" for "spent." A clearer comprehension of speech may be gained with a hearing aid or a cochlear implant. However, use of these devices does not restore normal hearing.

Presbycusis (presby = elder, cusis = hearing) is the loss of hearing that gradually occurs in most individuals as they grow old. Everyone who lives long enough will develop some degree of presbycusis, some sooner than others. It is estimated that 40% to 50% of people 75 years and older have some degree of hearing loss. The loss associated with presbycusis is usually greater for high-pitched sounds.

Box 3-7 provides suggestions for actions that can promote effective communication with a person who is deaf or hard of hearing.

BOX 3-7 Strategies for Communicating with a Person Who Is Deaf or Hard of Hearing

- Move closer to the person. Shortening the distance between the speaker and listener will increase the loudness of sound. This approach is much more effective than raising your voice. Never shout as a person who is hard of hearing.
- Reduce background noise. Many noises that we take for granted are amplified by a hearing aid or cochlear implant, especially while utilizing nitrous oxide analgesia or conscious sedation.
- Talk face to face. Speak at eye level. Do not cover your mouth with a mask when you ask the patient questions or give instructions.
- Try rewording a message. At times, a person with a hearing loss may be partially dependent on speech reading (lip reading) because some sounds may not be easily heard even with a hearing aid. Because some words are easier to speech read than others, rephrasing a message may make it easier for the person to understand.
- Use a notepad to write down important questions or directions so that the person can read them. This helps eliminate misunderstandings. If the person cannot read or reads in a language that is unfamiliar to you, a picture board (see Fig. 3-5) may be quite helpful.
- Make sure that the person fully understands what you said. Some people, especially if the hearing loss is recent, are reluctant to ask others to repeat themselves. They feel embarrassed by their hearing loss. Simply ask the person to repeat what you said. For example, say, "If you could please repeat back to me what I said, I can make sure I told you everything that I need to."
- Show special awareness of the hearing problem. Call the person with a hearing loss by name to initiate a communication. Give a frame of reference for the discussion by mentioning the topic at the outset ("I would like to review your medications.").
- Be patient, particularly when the person is tired or ill and may be less able to hear.

SECTION 4 • Speech Barriers

Communication with People Who Are Unable to Speak Effectively

It is important to remember that problems with speech or language do not necessarily mean that the person has an intellectual impairment. For example, people who have suffered a stroke are often frustrated when others think that their intellect has been impaired because of their problems with communication. Difficulty with speech does not have anything to do with intelligence. If understanding is difficult, it may be useful to ask the person to write a word or phrase. Box 3-8 provides suggestions for useful actions when communicating with patients with speech impairment.

DYSARTHRIA

Dysarthria refers to speech problems that are caused by the muscles involved with speaking or the nerves controlling them. Individuals with dysarthria have difficulty expressing certain words or sounds. Speech problems experienced include:

- Slurred speech
- Speaking softly or barely able to whisper
- Slow rate of speech
- Rapid rate of speech with a "mumbling" quality
- Limited tongue, lip, and jaw movement
- Abnormal rhythm when speaking
- Changes in vocal quality ("nasal" speech or sounding "stuffy")
- Drooling or poor control of saliva
- Chewing and swallowing difficulty
- Common causes of dysarthria are poorly fitting dentures, stroke, any degenerative neurological disorder, and alcohol intoxication.
- After a stroke or other brain injury, the muscles of the mouth, face, and respiratory system may become weak, move slowly, or not move at all.
- Some former severe alcoholics who have developed brain damage due to drinking may have continued problems with language, even after years of sobriety.

APHASIA

Aphasia is a disorder that results from damage to language centers of the brain.

- It can result in a reduced ability to understand what others are saying, to express ideas, or to be understood.
- Some individuals with this disorder may have no speech, whereas others may have only mild difficulties recalling names or words.
- Others may have problems putting words in their proper order in a sentence.
- The ability to understand oral directions, to read, to write, and to deal with numbers may also be disturbed.
- For almost all right-handers and for about half of left-handers, damage to the left side of the brain causes aphasia. As a result, individuals who were previously able to communicate through speaking, listening, reading, and writing become more limited in their ability to do so.
- The most common cause of aphasia is stroke, but gunshot wounds, blows to the head, other traumatic brain injury, brain tumor, Alzheimer disease, and transient ischemic attack (TIA) can also cause aphasia.

BOX 3-8

Strategies for Communicating with a Person Who Is Unable to Speak Effectively

- Book longer appointment times to allow for the longer time needed for communication.
- Whenever possible, speak directly to the patient; even if comprehension is limited, the patient will be more responsive if he or she is an active participant.
- Develop a tolerance for silences. Many patients require extra time to process your questions and/or to formulate a response.
- Do not talk while the patient is formulating a response—this is very distracting.
- Try not to panic when communicating with a person who cannot speak effectively. If you feel nervous, do not let it show.
- Never finish a sentence for someone who is struggling with his or her speech—be patient and wait for him or her to finish.
- Find out if the patient has his or her own way of indicating "yes" or "no" (e.g., looking up for yes).
- If you are having problems understanding the person, say so. Do not pretend you understand if you do not as this will inevitably create problems later on. Simply apologize and ask if the patient would mind writing down what it is he or she wants to say.
- If you are having difficulties communicating with the patient, ask permission to direct your questions to the support person. Remember to look directly at the patient from time to time so that he or she still feels a part of the conversation.
- Use gestures and pictures to help the patient understand. For example, wave hello and goodbye, point to a tooth, or show simple pictures to clarify procedures.

Communication with People Who Have Had a Laryngectomy

Laryngectomy—the surgical removal of the voice box due to cancer—affects approximately 9,000 individuals each year; most are older adults. People who have undergone laryngectomy have several options for communication:

- **The artificial larynx.** Held against the neck, the artificial larynx transmits an electronic sound through the tissues, which is then shaped into speech sounds by the lips and tongue. The user articulates in the normal way.
- **Esophageal voice.** Esophageal voice is achieved by learning to pump air from the mouth into the upper esophagus. The air is then released, causing the pharyngoesophageal segment to vibrate to produce a hoarse low-pitched voice.
- **Surgical voice restoration.** Fitting a prosthesis or valve into a puncture hole between the trachea and esophagus either at the time of surgery or at a later date may restore voice. The individual occludes the stoma when he or she wishes to speak. Air then passes through the valve into the esophagus, producing voice in the same way as for esophageal voice.
- **Silent mouthing/writing/gesture.** A small percentage of patients never acquire a voice and are unable to use an electronic larynx. They communicate by silently articulating words or a mixture of writing and gesture.

Box 3-9 provides suggestions for actions that can promote effective communication with a person with a laryngectomy.

BOX 3-9

Strategies for Communicating with a Person with a Laryngectomy

- Use the suggestions provided in Box 3-8.
- Give the patient plenty of time to speak. Do not hurry the person; if the patient feels pressured, it can affect the ability to communicate.
- Ask the patient to repeat if you do not understand. Do not pretend you understand if you do not—it will be obvious to the patient that you do not understand.
- Watch a person's lips if you are finding it hard to understand.
- Do not assume it is a hoax call or that someone is playing a joke if you hear an electronic sounding voice or someone struggling to communicate over the telephone.

SECTION 5 • Special Health Care Needs

Disability Cultural Awareness and Etiquette

American Dental Association defines **patients with special needs** as "those [individuals] who due to physical, medical, developmental or cognitive conditions require special consideration when receiving dental treatment. This can include people with autism, Alzheimer's disease, Down syndrome, spinal cord injuries, and countless other conditions or injuries that can make standard dental procedures more difficult."

According to the United States Census Bureau 2010 survey, approximately 56.7 million people (18.7%) living in the civilian noninstitutionalized population of the United States have some kind of disability. About 38.3 million people (12.6%) have a severe disability.[19] People with disabilities constitute our nation's largest and most diverse minority group. Everyone is represented: all genders, all ages, all religions, all socioeconomic levels, and all ethnic backgrounds. There are many different types of disabilities: vision, hearing, physical, cognitive/intellectual, mental health, visible versus invisible, and developmental versus acquired.

Most people think of cultural awareness as relating to ethnic populations. However, the population of people with disabilities is a growing group that deserves attention in the realm of cultural awareness. Disability etiquette is a large part of cultural awareness for people with special health care needs. As with all patients, each person with a disability or special health care need is unique even within the grouping or classification of a condition, disease or disability they have.

"People-First" Language

The language a society uses to refer to persons with medical conditions or disabilities shapes its beliefs and ideas about them. When we describe people by their medical conditions—such as "He is diabetic," "She is a spina bifida patient"—we devalue them as individuals. In contrast, using thoughtful terminology—such as, "He has diabetes," "The baby has spina bifida"—indicates that he or she has a condition (that does not define him or her as a person). One suggested tool for communicating with and about people with medical conditions or disabilities is "**People-First language**." People-First language emphasizes the *person*, not the *condition/disability*. By placing the person first, the disability is no longer the primary, defining characteristic of an individual, but one of several aspects of the whole person. For example, a person who wears glasses doesn't say, "I have a problem seeing," they say, "I wear/need glasses." Similarly, a person who uses a wheelchair doesn't say, "I have a problem walking," they say, "I use/need a wheelchair."

The significant push to use "People-First" language to avoid an unintentional offense has been met with mixed emotions in the disability community. Regardless of the intent, recognizing and expressing the importance of the value of each individual regardless of their particular abilities is paramount to the relationship between the dental professional, patient, and family/caregivers. Table 3-2 provides examples of "People-First" language.

In addition to language, examples of other types of disability etiquette are presented in Box 3-10.

TABLE 3-2 EXAMPLES OF "PEOPLE-FIRST" LANGUAGE

Instead of	Use
The autistic boy	The boy who has autism
She is a Downs' patient	She has Down syndrome
He is wheelchair bound	He uses a wheelchair
A handicapped girl	A girl who has a disability
Disabled parking/doors/rooms	Accessible parking/doors/rooms
Mentally retarded or slow	Intellectual or cognitive disability
Birth defect	Congenital disability

BOX 3-10

Examples of Disability Etiquette

- Greet and talk directly to the person with a disability.
- Talk to adults like adults unless you know their intellectual age is much lower.
- Assistive devices (wheelchairs, braces, walkers, etc.) are an extension of the person—avoid touching, leaning on, or removing items from their reach without permission.
- Ask permission before offering help.
- When in doubt . . . ask!
- Ask if you can fist bump or shake hands.
- Treat with respect and dignity.
- Relax.
- Don't worry if you unintentionally use a word or phrase connected to the disability (Saying "Do you *see* what I mean?" to a patient who is visually impaired.).

Potential Barriers to Dental Care for Patients with Special Needs

Communication with people who have a disability or special health care need includes recognizing possible barriers these patients might encounter prior to arriving at the dental office. Perceptions about dental care for people with special health care needs include positive and negative biases on the part of the dental team, medical team, patient, and patient's family/caregivers.

The dental experience for a patient with a special health care needs begins long before the actual dental appointment. Understanding how many potential barriers the patient has overcome to arrive at the dental appointment can be the key to successful communication and treatment.

- Depending on the nature of the disability or health condition, the patient might be completely dependent on someone else to recognize the need for dental care and act on that need. In some instances, the health values of the *family or caregiver* may determine the frequency of dental care appointments.

- Like anyone else, a patient with a disability may have concerns about the cost of dental treatment. There is a common misconception that all people with special health care needs cannot afford dental care. However, people with special health care needs come from all socioeconomic backgrounds. They have various degrees of insurance coverage and financial resources.
- Regardless of their desire to get dental treatment, transportation barriers are also a concern for some people who rely on others to get them to their appointment. Mistaking a failed appointment or consistently late arrivals as a lack of patient concern for oral health can lead to additional barriers.
- Effective communication with someone who has a disability affecting speech or cognitive abilities can be a challenge in some cases.

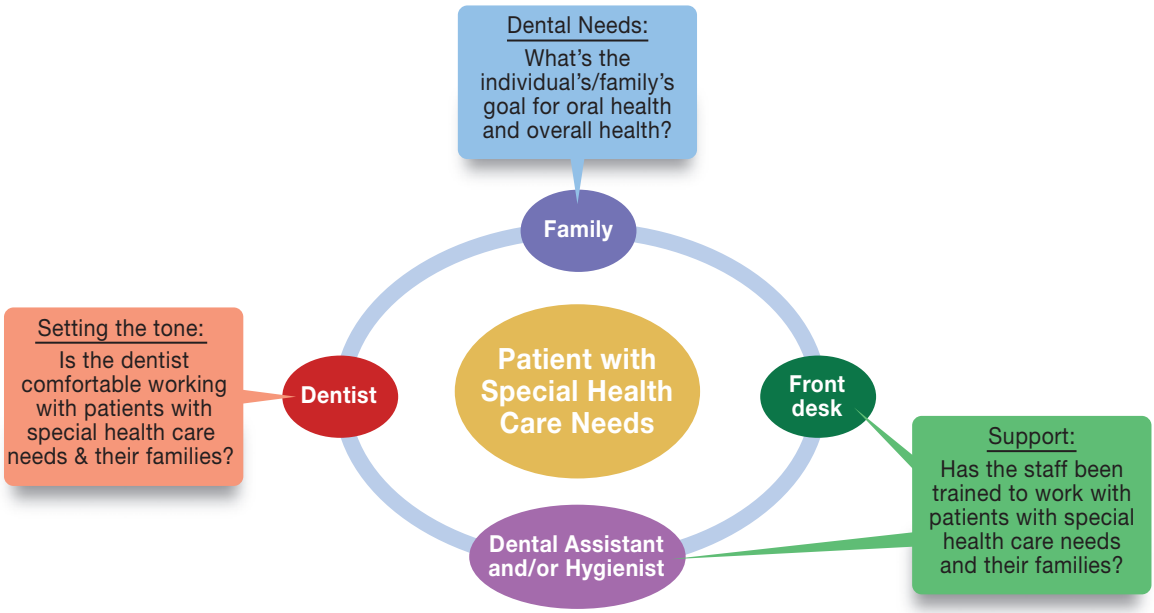

FIGURE 3-6 **Perceptions of special health care needs.** The quality of care that a patient with special needs receives is impacted by the perceptions of other individuals—such as the patient's family or caregiver—as well as the perceptions and professional expertise of the dental team members.

Communication with People Who Have an Intellectual Disability

People with an **intellectual/cognitive disability** typically have an IQ score of 70 or less with a diagnosis or onset before 18 years of age on the Wechsler & Stanford-Binet Scales. They also have concurrent impairments in adaptive functioning in at least one of the following areas:

- Communication, social skills, self-direction
- Daily home living, self-care activities
- Functional academic, work, health, and safety skills[20,21]

Determining the intellectual age of the patient with a cognitive/intellectual disability is the key to utilizing communication strategies appropriate for the patient. The parent or caregiver can inform the clinician of the patient's intellectual age. (e.g., A 56-year-old man with the intellectual age of a 5-year-old presents for clinical assessment. The hygienist should communicate with the man in a manner appropriate for a 5-year-old child and include the parent/caregiver in discussions.)

Down syndrome is a set of physical and mental traits caused by a gene problem that happens before birth.[20,22] Children who have Down syndrome tend to have certain features, such as a flat face and a short neck. Down syndrome is a lifelong condition. Down syndrome is one of the most common causes of intellectual disability diagnosed in the United States. Patients with Down syndrome are typically affectionate, gentle, and cheerful, with the occasional bout of stubbornness. The hygienist should avoid providing overly friendly attention to the patient, especially of the opposite sex. Patients with Down syndrome tend to be hypersexual and easily convinced that you are their boyfriend or girlfriend. Box 3-11 provides suggestions for communicating with an individual with an intellectual disability.

BOX 3-11 Strategies for Communicating with a Person with an Intellectual Disability

- Determine the intellectual age of the patient and communicate based on that age rather than the chronological age of the patient.
- Speak slowly in simple, easy-to-understand sentences.
- Give only one simple command at a time.
- Give the patient plenty of time to speak. Do not hurry the person; if the patient feels pressured, it can affect the ability to communicate.
- Focus the majority of your attention on the patient but also review with the family/caregiver.
- If the patient is fairly dependent on the family/caregiver, ask the caregiver what works best at home when providing oral health care.
- Describe actions before carrying them out (tell-show-do).
- Praise often with verbal praise, high fives, fist bumps, etc.
- Do not ask permission to perform a procedure if it will be performed in any case. (e.g., "I am going to check your teeth now, is that OK?—What if the patient's answer is NO?)

Communication with Children with Attention Deficit Hyperactivity Disorder

Attention deficit hyperactivity disorder (ADHD) is a developmental disorder believed to be caused primarily by genetic factors. Although this disorder occurs mainly in boys, it can also occur in girls. Currently, many researchers think certain neurotransmitters in the brain may be deficient in patients with this disorder. ADHD is a chronic condition with 30% to 50% of those individuals diagnosed in childhood continuing to display some symptoms into adulthood. Since adolescents and adults with ADHD tend to develop coping mechanisms for some or all of their behavioral impairments, management of children with this condition is the greatest challenge in a dental setting. Children with ADHD can display an inability to regulate their behavior to such a degree that it can have significant effects on their daily lives. These patients can display a variety of problems that can make the delivery of dental care difficult. Examples of these types of problems include the following:

- Difficulties with sustained attention
- Difficulties with impulse control
- Excessive activity
- Increased distractibility
- Difficulty following rules or instructions

Treatment for patients with this disorder can involve some combination of medications, behavior modifications, lifestyle changes, and counseling. Box 3-12 outlines strategies that can aid in communicating with children with ADHD during an appointment in a dental setting.

BOX 3-12

Strategies for Improving Communication with Children with Attention Deficit Hyperactivity Disorder

- If the child is on medications for ADHD, remind the parents to have the child take the medications (as prescribed by the patient's physician) on the day of the appointment.
- Schedule the child for the time of the day when the child will best tolerate the appointment—this is usually morning appointments, but the child's parents can guide you as to what is best for the individual patient.
- Explain to the child what is expected of him or her during the appointment; during the explanation to the child, always use clear and concise words.
- When giving instructions to the child during the appointment, give only one direction or command at a time.
- Sincerely praise the child who is doing well during the appointment.
- Consider using small rewards for reinforcement as you might with other children.
- Focus on the task and ignore minor inappropriate behaviors in the child.

Communication with People Who Have an Autism Spectrum Disorder

Autism spectrum disorder describes a range of conditions classified as neurodevelopmental disorders that impair a child's ability to communicate and interact with others. It also includes restricted repetitive behaviors, interests, and activities. These issues cause significant impairment in social, occupational, and other areas of functioning. The autism spectrum disorder diagnosis encompasses and replaces the older individual disorder names of autism, Asperger syndrome, pervasive developmental disorder not otherwise specified, and childhood disintegrative disorder.[23] According to a 2010 Centers for Disease Control and Prevention survey of 8-year-olds, 1 in 68 children have autism spectrum disorder.[20,24] Unlike patients with Down syndrome—whose behavior and communication skills are fairly easy to predict and manage—symptoms of autism spectrum disorder may vary greatly from individual to individual and even within the same person on a different day or time of day.

Symptoms of autism spectrum disorder fall into two categories and vary by individual. Individuals with *social symptoms* may look, listen, and respond to people less; respond unusually to anger, distress, or affection or rarely share toys/activities or show things to others. Persons with *repetitive and stereotypical behaviors* may exhibit behaviors such as arm flapping or unique walking patterns or fixed routines, such as lining up toys, books, etc. Associated conditions that can affect communication may include sensory issues (over- or under-reaction to sights, sounds, smells, textures, and tastes), intellectual disability, or mental disorders. Box 3-13 presents strategies for communicating with a person with autism spectrum disorder.

BOX 3-13 Strategies for Communicating with a Person with Autism Spectrum Disorder

- If possible, speak to a family member or caregiver prior to the appointment to learn about the patient's likes/dislikes, fears, mannerisms, etc. This information can be invaluable! (e.g., Johnny is an 18-year-old with autism spectrum disorder that cooperates well at the physician's office and at home for toothbrushing but screams when he tastes or smells mint. Good to know. Remove mint products from the treatment room prior to seating the patient.)
- Prepare a photo book of the dental office showing all the rooms, equipment, and staff to be sent to the patient/family prior to the appointment to prepare the patient for the new surroundings.
- Schedule appointments for times when the waiting room is not as crowded and quieter.
- If the patient has an intellectual disability, adjust communication based on intellectual age rather than the chronological age of the patient.
- Do not insist on eye contact. Speak with a soft tone and calm demeanor. Do not hurry the person or insist on a response; if the patient feels pressured, it can affect the ability to communicate.
- Be prepared for unusual reactions to lights, sounds, textures, taste, and touch. Be creative when something elicits an unfavorable reaction. (e.g., If the dental chair light is irritating to the patient, try a lighted mouth mirror.)
- If multiple visits are required, consistency and routine are very important (same person, room, colors, etc.).

Communication with People Who Have Cerebral Palsy

Cerebral palsy is a group of neurological disorders diagnosed in infancy and early childhood. Body movement and muscle coordination are permanently affected but do not worsen over time. Cerebral palsy is the most common motor disability in childhood. The Centers for Disease Control and Prevention estimates that an average of 1 in 323 children in the United States has cerebral palsy. Associated conditions include intellectual disability in approximately 30% to 50% of individuals with cerebral palsy. However, not all patients with cerebral palsy should be assumed as having intellectual disabilities. Other associated conditions may include seizures (up to 50%); delayed growth and development; and problems with vision, hearing, or speech.[20]

Individuals with cerebral palsy may exhibit stiff muscles and awkward movements or uncontrollable movements in the hands/arms and feet/legs. Common dental issues or concerns that could hamper communication and assessment may include difficulty swallowing with risk of aspirating food/fluid, drooling, and/or an overactive bite or gag reflex. Refer to Box 3-11 for strategies for patients with intellectual disability. Box 3-14 provides suggestions for communicating with a person who has cerebral palsy.

BOX 3-14

Strategies for Communicating with a Person with Cerebral Palsy

- Determine the intellectual age of the patient and communicate based on that age rather than the chronological age of the patient.
- Maintain eye contact when the patient is able to remain focused on you.
- Speak with a soft tone and calm demeanor. A relaxing environment can reduce anxiety and uncontrolled body movements.
- Do not hurry the person or insist on a response; if the patient feels pressured, it can affect the ability to communicate.
- Maintain clear paths in the office and operatory to allow for uncontrolled gait.
- Allow patient to settle into the most comfortable position that is possible for them. Don't force them into position.
- Follow the patient's movements and observe patterns in order to predict the uncontrolled movements of hands, arms, legs, or feet.
- Avoid trying to restrict or harness movement which might intensify the muscle response.
- Ask the patient before moving them. Use gentle, slow position changes and pressure.
- Describe actions before carrying them out (tell-show-do).
- Keep appointments short and take frequent breaks. Use mouth props as needed.
- Praise often to eliminate the patient's stress. The patient's anxiety and strong desire to cooperate will sometimes make involuntary movements more pronounced.
- Focus the majority of your attention on the patient but also review with the family/caregiver as needed.
- If the patient is fairly dependent on the family/caregiver, ask them what works best at home when providing oral health care.

SECTION 6 • The Human Element

Through the Eyes of a Student

HELPING PATIENTS WITH SPECIAL NEEDS

I have this 92-year-old patient, Mrs. W., who always comes with her daughter. Mrs. W. lives in an assisted living facility. I saw Mrs. W. in the dental clinic last year, too, and she always has a heavy amount of plaque when she comes in. I talked to her daughter about this in the past. The daughter lives an hour away from her mother and so cannot be there to brush her mother's teeth every day. Today, the daughter said that she asked the staff at the assisted living facility to assist her mother in brushing her teeth, but she doesn't think that they have been helping her. I felt sorry for Mrs. W. because I know assisted living facilities commonly are understaffed and oral hygiene care is not a priority.

The daughter said that there is a problem getting the staff to do things for her mother because they are so busy. She said that her mother has low blood sugar and is supposed to have a protein snack each afternoon. Her mother didn't get her needed snack until her physician wrote it as "a prescription" to the staff.

For me, her story about the snack was like a light bulb going off in my head! What a great idea! So I talked with our clinic's dentist and he wrote "brush teeth after evening meal" on a prescription and signed it. Mrs. W.'s daughter was very pleased that we cared enough about her mother to write this "prescription."

Melissa, recent graduate,
East Tennessee State University

Through the Eyes of Others

BEING DIFFERENT

Exercise: Understanding Others. Read the lyrics to the song **"Don't Laugh at Me"** written by Allen Shamblin and Steve Seskin. Write or participate in a group discussion about a childhood experience of your own or one that you witnessed in which being different was a source of pain.

Don't Laugh at Me

By Steve Seskin and Allen Shamblin

I'm a little boy with glasses
The one they call a geek
A little girl who never smiles
'Cause I've got braces on my teeth
And I know how it feels
To cry myself to sleep
I'm that kid on every playground
Who's always chosen last
I'm the one who's slower
Than the others in my class
You don't have to be my friend
But is it too much to ask?
Chorus:
Don't laugh at me don't call me names
Don't get your pleasure from my pain
In God's eyes we're all the same
Someday we'll all have perfect wings
Just how much you care

THE ELDERLY

Directions. Think of the first words that come to mind when you envision providing dental care to an "old" patient.

- Reflect on how your expectations may influence or bias your interaction with the patient.
- Reflect upon what it means to allow someone to "save face."
- Consider ways in which a dental hygienist can help an elderly patient preserve his or her dignity in the face of a limitation he or she experiences (i.e., loss of hearing, memory loss, arthritis of the hands).

Communication Scenario

THE JOB INTERVIEW

You are a dental hygienist who is deaf and have just graduated from a dental hygiene program at the top of your class. Although you have speech, you always sat in the front row of the classroom so that you could read the lips of your professors. During your schooling, the only accommodation that you utilized was assistance from a note taker. Your clinical instructors also utilized the use of face shields as opposed to face masks for easier communication.

You have applied for a dental hygiene position at the office of Dr. Daniel and will be the only employee in the dental office who is hearing-impaired. The patient population of Dr. Daniel's practice is vastly multicultural. Dr. Daniel wants to offer you the position but is concerned about communication barriers.

Discussion Points:

1. What if any modifications must be made to ensure you are able to effectively communicate with all of the office staff?
2. What if any accommodations must be made to ensure that you are able to effectively communicate with your patients during your hygiene appointments?
3. What tips can be used for improving cross-cultural communication between you and your dental hygiene patients?
4. Is it ethical for Dr. Daniel to refuse to hire you based on your hearing impairment?

SECTION 7 • Skill Check

Skill Checklist: Communications Role-Play

Student: _____ Evaluator: _____

Date: _____

ROLES:

- **Student 1** = Plays the role of the patient.
- **Student 2** = Plays the role of the clinician.

DIRECTIONS FOR STUDENT: Use **Column S**; evaluate your skill level as **S** (satisfactory) or **U** (unsatisfactory).

DIRECTIONS FOR EVALUATOR: Use **Column E**. Indicate **S** (satisfactory) or **U** (unsatisfactory). In the optional grade percentage calculation, each **S** equals 1 point, each **U** equals 0 point.

CRITERIA:	S	E
Uses appropriate nonverbal behavior such as maintaining eye contact, sitting at the same level as the patient, nodding head when listening to patient, etc.		
Interacts with the patient as a peer and avoids a condescending approach. Collaborates with the patient and provides advice.		
Communicates using common, everyday words. Avoids dental terminology.		
Listens attentively to the patient's comments. Respects the patient's point of view.		
Listens attentively to the patient's questions. Encourages patient questions. Clarifies for understanding, when necessary.		
Answers the patient's questions fully and accurately.		
Checks for understanding by the patient. Clarifies information.		
OPTIONAL GRADE PERCENTAGE CALCULATION		
Using the **E** column, assign a point value of 1 for each **S** and 0 for each **U**. Total the sum of the "**S**"s and divide by the total points possible to calculate a percentage grade.		

NOTE TO COURSE INSTRUCTOR: A collection of role-play scenarios—for use with the Communications Skill Checks—can be downloaded from the Navigate 2 Advantage Access site.

References

1. Dong M, Loignon C, Levine A, Bedos C. Perceptions of oral illness among Chinese immigrants in Montreal: a qualitative study. *J Dent Educ*. 2007;71(10):1340–1347.
2. Fitch P. Cultural competence and dental hygiene care delivery: integrating cultural care into the dental hygiene process of care. *J Dent Hyg*. 2004;78(1):11–21.
3. Formicola AJ, Klyvert M, McIntosh J, Thompson A, Davis M, Cangialosi T. Creating an environment for diversity in dental schools: one school's approach. *J Dent Educ*. 2003;67(5):491–499.
4. Formicola AJ, Stavisky J, Lewy R. Cultural competency: dentistry and medicine learning from one another. *J Dent Educ*. 2003;67(8):869–875.
5. Mertz E, O'Neil E. The growing challenge of providing oral health care services to all Americans. *Health Aff (Millwood)*. 2002;21(5):65–77.
6. Betancourt JR, Maina AW, Soni SM. The IOM report unequal treatment: lessons for clinical practice. *Del Med J*. 2005;77(9):339–348.
7. Betancourt JR, Maina AW. The Institute of Medicine report "Unequal Treatment": implications for academic health centers. *Mt Sinai J Med*. 2004;71(5):314–321.
8. Betancourt JR, King RK. Unequal treatment: the Institute of Medicine report and its public health implications [editorial]. *Public Health Rep*. 2003;118(4):287–292.
9. Romanow RJ. *Building on Values: The Future of Health Care in Canada*. Saskatoon, Canada: Commission on the Future of Health Care in Canada; 2002.
10. United States Census Bureau, Ethnic and Hispanic Statistics Branch. *The Foreign-Born Population in the United States, March 2001*. Washington, DC: United States Census Bureau; 2003.
11. Hobbs F, Stoops N. *Demographic Trends in the 20th Century*. Washington, DC: United States Census Bureau; 2002.
12. Economics and Statistics Administration. *Census 2000. Modified Race Data Summary File Census of Population and Housing*. Washington, DC: U.S. Department of Commerce, Economics and Statistics Administration, United States Census Bureau; 2002. http://purl.access.gpo.gov/GPO/LPS32088. Accessed May 30, 2016.
13. Mackun P, Wilson S. *Population Distribution and Change: 2000 to 2010*. Washington, DC: U.S. Department of Commerce, Economics and Statistics Administration, United States Census Bureau; 2011.
14. Humes KR, Jones NA, Ramirez RR. *Overview of Race and Hispanic Origin: 2010*. Washington, DC: U.S. Department of Commerce, Economics and Statistics Administration, United States Census Bureau; 2011.
15. U.S. Department of Health and Human Services, National Institutes of Health, National Eye Institute. *Eye Disease Statistics*. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Eye Institute; 2014.
16. Blackwell DL, Lucas JW, Clarke TC. Summary health statistics for U.S. adults: National Health Interview Survey, 2012. *Vital Health Stat*. 2014;10(260):1–161.
17. U.S. Department of Health and Human Services, National Institutes of Health. *Health Information: Statistics and Epidemiology. Statistics about Hearing, Ear Infections, and Deafness*. Bethesda, MD: National Institute of Health; 2015.
18. Lin FR, Niparko JK, Ferrucci L. Hearing loss prevalence in the United States. *Arch Intern Med*. 2011; 171(20):1851–1852.
19. Brault MW. *Americans with Disabilities: 2010—Household Economic Studies, Current Population Reports*. Washington, DC: United States Census Bureau.
20. Centers for Disease Control and Prevention. *People with Disabilities. Multiple Disability Topics*. Bethesda, MD: Centers for Disease Control and Prevention; http://www.cdc.gov/ncbddd/index.html. Accessed May 30, 2016.
21. American Association on Intellectual and Developmental Disabilities. *Intellectual Disability, Definition, Frequently Asked Questions on Intellectual Disability*. Washington, DC: American Association on Intellectual and Developmental Disabilities. http://aaidd.org/. Accessed May 30, 2016.
22. Parker SE, Mai CT, Canfield MA, et al; National Birth Defects Prevention Network. Updated national birth prevalence estimates for selected birth defects in the United States, 2004–2006. *Birth Defects Res A Clin Mol Teratol*. 2010;88:1008–1016.
23. American Psychiatric Association. *Autism Spectrum Disorder Fact Sheet*. Arlington, VA: American Psychiatric Association; 2013. http://www.dsm5.org/Documents/Autism%20Spectrum%20Disorder%20Fact%20Sheet.pdf. Accessed May 30, 2016.
24. Wingate M, Kirby RS, Pettygrove S, Cunniff C, Schulz E, Ghosh T, et al. Prevalence of autism spectrum disorder among children aged 8 years—autism and developmental disabilities monitoring network, 11 sites, United States, 2010. *MMWR Surveill Summ*. 2014;63(2):1–21.