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Building Bridges: Dental Care for Patients with Autism

A Peer-Reviewed Publication
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Educational Objectives

The overall goal of this article is to provide dental professionals with information on autism spectrum disorders and to ensure that they attain the comfort level and appropriate knowledge to treat and help afflicted patients.

Upon completion of this course, the dental professional will be able to:

1. Know the prevalence of autism and what ASDs encompass.
2. Recognize the signs and symptoms of autism.
3. Evaluate the abilities of the patient with autism in order to provide dental care.
4. Discuss and demonstrate appropriate home care with patients with autism and parents/caregivers.

Abstract

Autism can severely impair the patient's ability to communicate, interact with others and maintain normal contact with the outside world. Symptoms can range from very mild to very severe. One in 150 individuals is diagnosed with autism, with more than 24,000 children diagnosed each year. There is as yet no definitive etiology for autism.

It is important that dental professionals seek out patients with autism and be able to recognize the signs and symptoms of autism spectrum disorders, both to refer patients to appropriate medical care, if necessary, and to enable dental treatment of these patients. Treating patients with autism can be both challenging and rewarding for dental professionals. It is crucial to introduce the patient to the dental environment and patient-appropriate care in a slow and gentle manner that builds trust and cooperation. Caries risk must be part of the initial assessment, and it is important that both the parent/caregiver and patient be introduced to a viable home care regimen that is tailored to the patient with autism.

Introduction

Autism is a disorder that can severely impair one's ability to communicate, interact with others and maintain appropriate contact with the outside world.

Autism is comprised of a complex group of neurobiological disorders caused by unusual brain development that usually last throughout a lifetime and are classified as autism spectrum disorders (ASDs). These disorders are associated with rigid routines and repetitive behaviors. Those afflicted have unusual ways of learning, paying attention and reacting to different sensations.

Autism was first described in 1943 by American psychiatrist Leo Kanner of The Johns Hopkins University. At the same time in Germany, Dr. Hans Asperger described a milder form of ASD which eventually became known as Asperger's Syndrome. These disorders, along with several others, including but not limited to Rett Syndrome, Perva-

sive Developmental Disorder and Childhood Disintegrative Disorder, are seen in children with varying degrees of communication disorders and/or delays. A child experiencing a developmental delay is defined as a child whose skills are developing at a slower rate than normal (based on age-appropriateness, whether it be a communication or motor skill). The skills of a delayed child are present but are slow to emerge. However, a child who presents with a disorder, such as an ASD, either will have skills that develop abnormally (the child once possessed a skill and then regressed, losing the skill) or will not develop skills at all at age-appropriate intervals. These developmental delays include such symptoms as speech difficulties, lack of eye contact, isolation and no fear of danger. Autism inhibits a person's ability to communicate and develop social relationships and is often accompanied by extreme behavioral challenges.

Patients with autism have unusual ways of learning, paying attention and reacting to different sensations

Autism and the Dental Professional

It is important that dental professionals are knowledgeable and comfortable treating patients who have these disorders. Several years ago, a Special Olympics study conducted by Reuters Health found that more than half of medical school and dental school deans said their graduates were not competent in treating patients with ASDs. In 2006, in response to the study, the Commission on Dental Accreditation issued the following statement: "In an effort to overcome the virtual absence of educational opportunities for the care of patients with special needs... all schools considered for accreditation by the Commission on Dental Accreditation must assure didactic and clinical opportunities to better prepare dental professionals for the care of persons with intellectual and other developmental disabilities." However, in the past many dental professionals were not exposed in dental and dental hygiene school to the challenges and rewards associated with treating these patients. Based on the prevalence of this disorder, as a dental professional you will likely meet at least seven or eight patients this year who have been diagnosed with ASDs! Do you understand their unique situations and feel confident in providing dental care to this diverse population?

As a dental professional, you will likely meet at least seven or eight patients this year who have been diagnosed with ASDs

Prevalence of ASDs

ASDs usually develop between ages 2 and 3, although recent research is beginning to look at diagnosis as early as 6 months of age. Autism is seen across all racial, ethnic and social groups, with a male predominance of four to one. Symptoms can be very mild to very severe. Today 1 in 150 individuals is diagnosed with autism, making it more common than pediatric cancer, diabetes and AIDS combined and seen in greater numbers than cerebral palsy, Down Syndrome, and hearing and vision impairment. (Table 1) Three children per hour are diagnosed with ASDs, and the rate of diagnosis has increased tenfold in the last decade, with 24,000 children currently diagnosed every year. Three million United States citizens have autism. The annual cost in the U.S. for caring for these individuals is estimated at \$35 billion.

Table 1. Prevalence of Childhood Conditions

Autism	1 in 150 individuals
Cerebral Palsy	1 in 357 individuals
Juvenile Diabetes	1 in 450 individuals
Down Syndrome	1 in 800 individuals
Deafness/Hearing Loss	1 in 909 individuals
Blindness/Vision Impairment	1 in 1,111 individuals

Etiology of Autism

The etiology of autism is multifaceted, and no one particular item has been proven to be “the” cause. The Centers for Disease Control and Prevention (CDC) has called autism a national public health crisis whose cause and cure remain unknown. In May 2008, the International Meeting for Autism Research held its seventh annual meeting, with more than 850 presentations on various subjects surrounding autism, including etiology, biology, diagnosis and treatment. Several of the presentations focused on the role of the environment as a risk factor for autism. Genetic risk factors may be affected by environmental factors. Other factors being researched as possible causes of autism include methods of birth induction, ultrasound frequency and home chemical exposures. Additionally, research is beginning to show that there is a familial pattern to symptoms of autism – if one child presents with symptoms, the parents are encouraged to be diligent in watching for signs/symptoms in other siblings, especially males. Other mechanisms being researched include nerve synapse connectivity and neuropathology of various structures of the brain. Preliminary research also indicates that a high percentage of patients with autism exhibit autoimmune disorders such as food allergies or rhinitis. It has been demonstrated that maternal infections can result in the elevation of cytokines in the fetal environment, which in turn may be a risk factor for developmental disorders. (Table 2)

Other hypotheses on the etiology of autism have been circulating for years, with no real definitive answers having been found. Speculations have considered autism as a psychiatric disorder and have implicated the roles of amino acids, stress, prenatal aspartame exposure, vitamin A deficiencies, smoking and air pollution, and vaccinations. But the bottom line is that there is no answer yet. Further research is needed in all areas of autism.

Table 2. Possible Factors in the Etiology of Autism

Genetic
Environmental
Methods of birth induction
Ultrasound frequency
Home chemical exposure
Smoking
Air pollution
Vaccinations
Physiological
Nerve synapse connectivity
Neuropathology of various structures of the brain
Autoimmune link
Fetal exposure to elevated levels of cytokines
Amino acid levels
Prenatal aspartame exposure
Vitamin A deficiencies
Psychiatric
Stress-related

Signs and Symptoms of Autism

Autism is diagnosed according to a pattern of symptoms rather than one single symptom. The main characteristics involve difficulties with social interaction and communication, limited interests, and repetitive behavior. Early signs and symptoms of ASDs include but are not limited to:

- No big smiles or other warm, joyful expressions by 6 months of age or thereafter
- No back-and-forth sharing of sounds, smiles or other facial expressions by 9 months of age (communication skills)
- No babbling by 12 months of age
- No back-and-forth gestures such as pointing, showing, reaching or waving by 12 months of age (motor skills)
- No words by 16 months of age

- No two-word meaningful phrases, without modeling or repeating, by 24 months of age
- Any loss of speech or babbling or social skills at any age
- Underdeveloped play skills for a particular age
- Oversensitivity to textures

Many of these signs and symptoms are common among children who are “delayed” but otherwise healthy and normal. Each child is an individual who grows and develops at his or her own rate, and children exhibiting these signs and symptoms do not necessarily have an ASD. For example, age-adjusted expectations are required for a child who is born prematurely relative to where the child would be if born at full term. The child may be “behind” based on actual chronological age, but in reality, the child would be right on target given her or his premature status. Therefore, assessing whether a child has an ASD or is merely delayed presents a challenge.

The main characteristics of autism involve difficulties with social interaction and communication, limited interests, and repetitive behavior

As there is no medical test or biomarker for autism, diagnosis is based on observation of the child’s behavior, educational and psychological testing, and parent reporting. Several diagnostic tools are used in assessing for ASDs. The Autism Diagnostic Interview–Revised (ADI-R) and the Autism Diagnostic Observation Schedule (ADOS) are two of the most widely used. ADI-R can be used for both children and adults with a mental age of 18 months or above and contains 93 items. It focuses on behavior in three main areas: reciprocal social interaction, communication and language, and restrictive/repetitive stereotyped interests and behaviors. The ADOS is a semistructured assessment of communication, social interaction, and play or imaginative use of materials for individuals suspected of having autism or other ASDs. It enables the examiner to observe over a 30-45 minute period the occurrence or nonoccurrence of behaviors that have been linked to ASDs, and is appropriate for all age levels and developmental abilities. A team of specialists is usually involved in the diagnosis and evaluation. The team may include a neurologist, a psychiatrist, a developmental pediatrician, a psychologist, a gastroenterologist, an audiologist, a speech therapist, an occupational therapist and other professionals.

Seeking Out Patients with Autism

How does a dental professional begin to treat patients with autism or ASDs? To do so, he or she must seek these patients out, whether formally or informally. Asking developmental questions on each patient’s general health history form is an

informal option and provides valuable information about the patient’s needs. A more formal option would be to have brochures or other informational materials available in the office reception area about treating patients with special needs. Many of these informational materials are available from the American Academy of Pediatric Dentistry or the Special Care Dentistry Association (www.aapd.org or www.scdonline.org). Provide those who are interested with a form that asks questions about the patient and her or his overall health, medical history, dental history and experiences, and disability.

Providing Dental Treatment for Patients with Autism

To treat ASD patients, one needs an open mind and heart, and emotional skills more than intellectual and clinical skills. The ability to get close to the patient both physically and emotionally, and the ability to leave behind reasoning skills and instead work using instinct and creativity, are important. This is a very different and sometimes challenging way of practicing dentistry and dental hygiene, but it is often a rewarding experience. Much understanding of the patient’s condition can be obtained from the patient or parent/caregiver through documentation and interviews; however, since each patient is a unique individual, most of the details are learned from one-on-one experience with the patient. “Making a difference in the oral health of a person with autism may go slowly at first, but determination can bring positive results and may be invaluable.”¹

The Initial Appointment

The initial appointment with a patient with autism should include an interview; an orientation to the dental practice, including staff and facility as warranted; and a brief exam (approximately 20 minutes). Administrative office personnel should obtain information as to the best time of day for the appointment and should inquire as to how the patient relates to having several people in a room at one time. If the patient is a child, ask the parent/caregiver to bring a comfort object or other coping device for the child as well as a second adult or friend who may stay with the child while the appropriate forms are reviewed with the parent. Prior to the initial appointment (and reinforced as necessary at subsequent appointments), photos of the office or a dental story can be sent to the parent/caregiver to familiarize the patient with the office.

Goals of the Initial Appointment

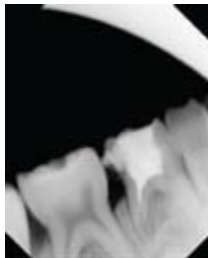
The initial appointment’s primary goal is to establish trust and allow the family to understand that you are a caring dental professional and are interested in their well-being. It is important to learn what the patient is capable of doing versus learning what the patient is not able to do. The appointment should not be rushed, and the parent/

1. www.nidcr.nih.gov

caregiver should be present during the appointment and should choose the location for the visit (e.g., reception area, operator, office, staff lunch area). The information obtained at this interview appointment should be reviewed in detail. Medical information obtained may include but is not limited to medications, seizure activity, allergies and/or sensitivities, and bladder/bowel adaptations. Standard health history forms are usually not sufficient. All previous dental experiences should be discussed, including daily oral hygiene care, tolerance levels, homecare likes and dislikes, and overall dental expectations.

Oral habits should also be discussed, including the patient's overall diet, snacking frequency, sensory chewing habits, clenching/grinding/bruxism and non-nutritive behaviors. Many patients with autism experience food sensitivities and aversions. Concerns include maintaining a gluten- or casein-free diet, aversions to certain food textures or consistencies, and the use or nonuse of sensory stimulating foods (e.g., lemon, sour candy, carbonation). Many ASD patients also experience frequent snacking, as either a reward system or a treatment modality. Inquiring about the types and frequency of snacks used in therapies is an important part of the interview process in order to assess caries risk factors. Figure 1 shows the results of reward snacking in a young child with autism whose oral hygiene and care were well-controlled.

Figure 1. Root Canal-Treated Primary Molar as a Result of Frequent Snacking



The patient's oral hygiene was well-controlled. Brushing and flossing were performed three times daily. Fluoride varnish was professionally-applied every six months.

It is also important to ask about the type and frequency of non-nutritive behaviors. Sensory chewing involves chewing on rubber tubing or other materials as a stress release for some individuals and/or to increase the muscular and sensing abilities of the masticatory muscles. Non-nutritive behaviors range from thumb/finger/pacifier sucking to PICA – the ingestion of nonedible materials, including dirt, clay, paint, plaster, chalk, cigarette butts/ashes, glue, paper, buttons, toothpaste or soap. While parents may think toothpaste is the lesser of the evils in this list, they should be instructed in the danger of toothpaste ingestion

and provided with clear instructions on the proper amount of toothpaste to be used during brushing.

The interview process should also include discussion of the patient's physical function, sensory and behavioral issues, and communication style. In the physical functioning category, the patient's stamina, breathing difficulties, range of motion, upper body strength, and self-care strengths and weaknesses should be discussed. Sensory issues involve visual, auditory, olfactory, gustatory (taste and texture) and tactile cues. Many ASD patients exhibit sensory modulation processing disorders that manifest as over-responsivity (when stronger input is needed to register sensations), under-responsivity (when slight input causes extreme reactions) or sensory seeking (hypo- and hypersensitivities comingling with the same sense).

Within the dental environment, a sensory modulation processing disorder may be affected by the patient's olfactory sense of the operator; auditory response to the high-speed handpiece; visual response to the lights; proximity to people and water; vestibular reactions to the chair movements; proprioceptive reactions to gagging and the lead apron; touch and temperature reactions to gloves, cotton rolls, and air/water; texture reactions to radiographic film or sensors, cotton rolls, or metal instruments; or taste sensations to gloves or medicaments. (Table 3) Every ASD patient will react differently according to each sense, and even the same patient may react differently to the same sensation at different times. A patient may experience a positive sensation on one visit, but the next time the same stimuli could produce a negative reaction. Understanding how a patient reacts to various sensory issues takes time, patience and repeated work with the individual. The interview process is the beginning of this understanding.

Table 3. Sensory Modulation Disorder and Dental Environmental Impacts

Olfactory Senses	Operator smells
Auditory Response	High-speed handpiece Other noises
Visual Sense	Operator light
Proximity	People and water
Movement	Operator chair
Touch and Temperature	Gloves
	Cotton gauze and rolls
	Instruments
	Air/water syringe
Taste Sensation	Textures of objects used intra-orally
	Medicaments
	Gloves
	Dental products

ASD patients exhibit a wide range of behavioral and emotional issues. Impulsiveness and a low threshold for frustration are common. ASD patients often verbally and/or physically lose control and may have physical/verbal cues that set them off or calm them down. Verbally, they may use inappropriate language or speak at inappropriate times. Physically, ASD patients may pinch themselves or others; head bang or bite themselves or others; or self-induce vomiting. Information gained during the initial interview as to what may frustrate or calm the patient is important in providing dental care. Some parents/caregivers rely on applied behavior analysis (ABA) techniques, based on B. F. Skinner’s model of positive reinforcements, to enhance the patients’ cooperation. Others may use a variety of other techniques and modalities to calm or soothe the child.

Understanding the issues and using calming techniques will allow the dental appointment to proceed at a smoother pace

Communication with the ASD Patient

Understanding how an ASD patient communicates is an important goal of the interview process. Many patients may exhibit hearing or speech/language difficulties. Receptive language (what is heard/received) and expressive language (what is said) are often areas within the speech/language arena that present issues. The ability to follow directions, learn new things, and articulate wants and needs may be difficult for some patients with autism. Many rely on verbal and nonverbal cues; others do not understand nonverbal language. Therefore it is essential for the dental professional to be aware of the manner in which the ASD patient communicates. Some require assistive communicative devices such as an AlphaSmart (portable word processor), AugmentComm Device (Figure 2) or PECS (Picture Exchange Communication System).

Figure 2. AugmentComm Device



PECS is an alternative communication technique for those who have little or no verbal skills. The PECS consists of a

book of pictures used to vocalize desires, observations and feelings. (Figure 3) The book grows as the patient grows, with more words and pictures, and is very helpful for those who are nonverbal.

Figure 3. Picture Exchange Communication System (PECS)



Following the interview, the patient orientation may take place. This will involve the “tell-show-do” method of communication and engagement. A brief examination without dental instruments can also be performed if the patient is cooperative. The patient should be allowed at this appointment to determine where the exam will take place. This allows a trust-building relationship between the patient and the dental professional to begin. The dental professional should “reward” the patient at the end of the appointment with an appropriate product. It is ideal to ask the parent/caregiver to bring a reward to ensure that it is appropriate. This also enhances the trust relationship, no matter how much the patient may have “misbehaved” or been uncooperative. Be sure to reward immediately following appropriate behavior, even if the behavior is only a handshake that was given when asked. ASD patients enjoy receiving rewards and will feel comfortable in seeing the dental professional at a future date if the first experience has been positive for him or her.

Rewarding the patient at the end of an appointment with an appropriate product helps build trust

Dental professionals should follow up any appointment with phone calls a day or two after the procedure and then at regular intervals (two, five and twelve weeks following). This conveys a sense of concern to the parent/caregiver and allows any recommendations to remain in the forefront of his or her mind. It also is a great way to market the practice – people don’t care how much you know until they know how much you care!²

2. Miller, C. *Serving the Patient with Special Needs*. Access, January 2006

A recare/reevaluation appointment three to six months in the future should be prearranged prior to the patient leaving the office, with the appropriate reinforcements sent to the patient prior to the recare visit.

The Second Appointment

The next appointment should be based on what was learned during the initial visit.

The second and subsequent appointments should be kept short while treatment is provided in a timely manner. A smile and a sense of playfulness, while understanding the patient's developmental age, will help in the treatment process. It is also important to continue to build on the trust relationship. Dental professionals should focus on the patient's abilities rather than disabilities in order to determine what will work during treatment. Information gleaned from the initial interview can answer such questions such as:

- How much time will be needed for a procedure?
- What do the dental professional, parent/caregiver and patient want to accomplish with the visit?
- What accommodations will be necessary?
- How will "success" be measured?

Keeping instruments out of sight until needed, keeping lights out of the patient's eyes and keeping distracting noises to a minimum add to the confidence and trust factor. Constant sincere reinforcement and consistent praise or high fives also improve trust. Involving the same dental team members in the patient's care each time avoids unnecessary anxiety and frustration for the patient. ASD patients crave consistency, and seeing the same faces at each visit helps build trust and confidence. Use of the "tell-show-do" technique of treatment allows familiarization and confidence. Familiarizing the parent/caregiver with the procedure prior to the office visit also improves outcomes. Children with autism can be very cooperative with dental treatment if an approach based on trust, tailored communication and appropriate appointment length is developed. Figures 4 and 5 show a child with autism attending for a prophylaxis, cooperative and comfortable.

Figure 4. Prophylaxis Visit



In Figure 4, the child's mother is assisting the dental hygienist without wearing gloves, helping to avoid increasing the child's fear level. In Figure 5, the child's mother is assisting by using the toothbrush handle to help keep her son's mouth open during treatment.

Figure 5. Prophylaxis Visit



Figures 4 and 5 courtesy of R. J. Raposa

Dr. David Tesini, a pediatric dentist in Sudbury, Massachusetts, developed the D-terminated Program of Repetitive Tasking and Familiarization in Dentistry, in which the dental professional presents one new step to the patient at each visit and the patient must master it before moving on to the next step. Parents/caregivers must practice a given routine at home so that visiting the dental office becomes a "game" with rewards. This game can include the use of plastic mirrors or dental films, which the dental office can supply, to simulate dental procedures at home routinely. Dividing the skill into small parts, demonstrating the skill, drilling of the skill, delighting the learner (individualized reward) and delegating the repetition (reinforcement of the skill) are components of the D-Terminated program. Additionally, three factors are important for success from a dental standpoint – maintenance of eye contact ("Look at me" statements), educational modeling (clear, understandable directions) and the use of a counting framework ("Let me do this for a count of 10").

Since many patients with autism act out for a reason and many cannot communicate that there is pain, they will often become aggressive. Therefore, planning for success is crucial to maintaining control of the dental situation. Developing relationships, reducing anxiety, and understanding and using the patient's strengths rather than weaknesses all increase the control the dental professional will have with the ASD patient. Many ASD patients also exhibit levels of dyspraxia (developmental coordination disorder). Patients who present with dyspraxia may not be able to perform basic tasks asked by dental professionals

even when they are trying their best. These tasks include opening wide, closing a little and turning the head. The dental professional must be aware of this and must adjust treatment modalities as necessary.

Developing relationships, reducing anxiety, and understanding and using the patient's strengths rather than weaknesses all increase the control the dental professional will have with the ASD patient

With any modification in treatment protocols for the ASD patient, the dental professional must remember that all of it means nothing to the patient, unless that patient is handled with a "special touch."

The following poem may be helpful in explaining life from an ASD patient's perspective:

Autism is something I have, not WHO I am.
Unable to always tell you how I feel.
Tell me exactly what you mean.
I want friends, I just don't know how.
Senses are easily overloaded.
My meltdowns are hard for everyone, especially me.

Love me and help me understand your world.
I have different abilities, not a disability.
Focus on what I can do, not what I can't do.
Explore my world and I will make you smile.

Home Care for Patients with Autism

Beyond treatment modality concerns, ASD patients and parents/caregivers need to be educated about the importance of home care therapies. It is crucial that the parent/caregiver be provided with hands-on training, and issues of accountability should be discussed. A question on the special-needs health history form such as "Who will be responsible for the success or failure of the patient's oral health?" is an appropriate measure.

Daily full-mouth disinfection rather than toothbrushing should be discussed. The dental professional needs to think of toothpastes and mouthwashes as medications and the toothbrush as the device used to deliver the medication. Consider altering conversations to include the use of the terms debridement and medication rather than brushing. Offering the parent/caregiver the information in writing also reinforces the concepts discussed. Begin educating the parent/caregiver and the patient in baby steps.

The dental professional needs to think of toothpastes and mouthwashes as medications and the toothbrush as the device used to deliver the medication

The First Session of Home Care

Set a timer for 5-10 seconds for the first brushing session. This allows the patient to brush alone, even if it is only for a few seconds, to help build confidence in the skill. Recommend a high frequency of brushing initially, and then reduce the frequency as the quality of the brushing increases. Discuss with the parent/caregiver the roles of saliva substitutes, fluoride, sealants and xylitol, and address any questions or concerns regarding their usage for the patient. Understanding the Individualized Educational Program (IEP) that has been developed for the overall education of your patient with autism will help you build bridges with the patient and provide oral healthcare and education at an appropriate pace and level of complexity. It is also important to look at the IEP to see if oral hygiene education has been included and if not to request that this be incorporated into the IEP. Emphasize with the parent/caregiver the importance of seeking professional attention for traumas to the oral cavity.

Measuring Success

How do dental professionals measure the success of treating patients with autism? Success is measured exactly the same way as is measured in general for the practice.

- How do the patient and parent/caregiver feel about visiting the dental practice?
- How is the patient responding to treatment?
- Evaluation of actual home care routines
- Presence/absence of any new disease
- Documentation of successes (and failures)

In addition to treating patients with ASDs, dental professionals should also evaluate all children for signs and symptoms of developmental delays. For dental professionals, it is beyond the scope of practice to "diagnose" a child with delays, but the recognition and referral to the appropriate resources is invaluable to those parents/caregivers who may not otherwise seek out such services. The earlier the recognition and treatment of delays is implemented, the better the outcome for the child and family. Dental professionals should build relationships with pediatricians, early intervention specialists and special education therapists in their area to provide a network of resources for families. The American Academy of Pediatric Dentistry and the American Academy of Pediatrics recommend initial dental visits for all children by age 1. This initial visit serves a

number of purposes but is primarily educational for the parent/caregiver.

Conclusions

The long-term impact of providing dental care for the ASD population varies for the patient, family and dental professionals. For patients, lifelong dental health, with a caring team that they know, provides one less event in their lives to be anxious about. For the family and caregivers, they will experience a feeling of acceptance and trust not typically found in many environments they encounter and they will tell others about it. For dental professionals and the dental practice, increased referrals from patients' family and friends, the increased reputation of the practice as caring, thoughtful and kind, and the opportunity to meet and work with some exceptional families. "It is hard to describe the elation one can feel when a patient who doesn't speak to anyone speaks to you."³

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last several years of her career lecturing to dental professionals on an international level, writing a textbook chapter, as well as journal articles on a variety of topics including courses and articles containing detailed tips and tools for successful dental treatment of patients with developmental and intellectual disabilities.

Karen has held several varied positions during her career in dental hygiene that include private practice, business management, professional relations, marketing, and sales. Most recently, she held an Assistant Professor/Assistant Director position at Boston University in the Department of General Dentistry's Extramural Programs. She is a member of the ADHA, the ADEA, the AADH, the Special Care Dentistry Association, the American Academy of Dental Medicine and Dentistry and holds advisory board positions with several key dental hygiene publications. Karen is currently Senior Manager of Professional Relations at Colgate-Palmolive, one of the supporters of this course.

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Disclaimer

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Reader Feedback

We encourage your comments on this or any PennWell course. For your convenience, an online feedback form is available at www.ineedce.com.

Questions

- Autism comprises a complex group of _____ that are caused by unusual brain development and usually last throughout a lifetime.
 - psychological disorders
 - neurobiological disorders
 - psychological and neurobiological disorders
 - none of the above
- Autism spectrum disorders (ASDs) include _____.
 - Rett syndrome and Asperger's syndrome
 - Pervasive Developmental Disorder
 - Childhood Disintegrative Disorder
 - all of the above
- In assessing a child experiencing a developmental delay, consideration must be given to _____.
 - age-appropriateness of behavior
 - prematurity at birth
 - the rate at which the child grows
 - a and b
- Autism inhibits a person's ability to communicate and develop social relationships, often accompanied by extreme behavioral challenges.
 - True
 - False
- As a dental professional, you will likely meet at least _____ patients this year who have been diagnosed with an ASD.
 - one or two
 - three or four
 - seven or eight
 - ten or eleven
- Currently in the United States, _____ children are diagnosed every year and _____ citizens have autism.
 - 9,000; one million
 - 15,000; two million
 - 24,000; three million
 - 28,000; four million
- Autism is seen in greater numbers than cerebral palsy, Down Syndrome, and hearing and vision impairment.
 - True
 - False
- A definitive etiology has been found for ASDs.
 - True
 - False
- Research has found a familial pattern to ASDs.
 - True
 - False
- Factors implicated in autism include _____.
 - genetics
 - autoimmune disorders
 - fetal exposure to elevated cytokine levels
 - all of the above
- Early signs and symptoms of ASDs include _____.
 - any loss of speech, or babbling, or loss of social skills at any age
 - no two-word meaningful phrases, without modeling or repeating, by 24 months of age
 - no big smiles or other warm, joyful expressions by six months of age or thereafter
 - all of the above
- A diagnosis of autism is based on _____.
 - observation of the child's behavior
 - educational and psychological testing
 - parent reporting
 - all of the above
- Use of the "tell-show-do" technique of treatment _____.
 - allows familiarization
 - improves outcomes
 - builds confidence
 - all of the above
- Two of the most widely used diagnostic tools for assessing for ASDs are _____.
 - the Autism Decisive Interview-Revised and the Autism Diagnostic Observation Schedule
 - the Autism Diagnostic Interview-Revised and the Autism Decisive Observation Schedule
 - the Autism Diagnostic Interview-Revised and the Autism Diagnostic Observation Schedule
 - none of the above
- Asking developmental questions on each patient's general health history form is an informal option that helps seek out patients with autism.
 - True
 - False
- Developing relationships, reducing anxiety, and understanding and using the patient's strengths rather than weaknesses all increase the control the dental professional will have with the ASD patient.
 - True
 - False
- The initial appointment with a patient with autism should include _____.
 - an interview
 - an orientation to the dental practice
 - a brief exam
 - all of the above
- Dental appointments for patients with autism _____.
 - should build on the previous and initial visits
 - should be kept short while treatment is provided in a timely manner
 - should be conducted with a sense of playfulness and a smile
 - all of the above
- The primary goal of the initial dental appointment is to _____.
 - perform a dental assessment
 - establish trust and allow the family to understand that you are a caring dental professional interested in their well-being
 - assess the parent's willingness to bring the child for dental care
 - all of the above
- ASD patients crave consistency, and seeing the same faces at each visit helps build trust and confidence.
 - True
 - False
- Oral habits of patients with autism that should be discussed include _____.
 - the patient's overall diet
 - non-nutritive behaviors
 - clenching/grinding/bruxism
 - all of the above
- Dietary concerns with patients with autism include food sensitivities and aversions, and the use or nonuse of sensory-stimulating foods such as lemon and sour candy.
 - True
 - False
- Frequent snacking is used in patients with autism as _____.
 - a reward system
 - supplemental nutrition
 - a treatment modality
 - a and c
- During dental visits, keeping instruments out of sight until needed, keeping lights out of the patient's eyes, and keeping distracting noises to a minimum add to the confidence and trust factor while treating patients with autism.
 - True
 - False
- PICA refers to _____.
 - the ingestion of edible materials
 - the ingestion of nonedible materials
 - peripheral incomplete calcifying adenomas
 - none of the above
- Discussion with the parent/caregiver on home care should include _____.
 - the role of saliva substitutes
 - the use of fluoride and application of sealants
 - the use of xylitol
 - all of the above
- Caries risk assessment for patients with autism must include an assessment of the type and frequency of snacking.
 - True
 - False
- Within the dental environment, a sensory modulation processing disorder may be affected by _____.
 - the patient's olfactory sense of the operator
 - response to the lights
 - reactions to gagging and the lead apron
 - all of the above
- The dental professional should "reward" the patient at the end of the appointment with an appropriate product, and it is ideal to ask the parent/caregiver to bring a reward to ensure that it is appropriate.
 - True
 - False
- For home care, daily full-mouth disinfection rather than toothbrushing should be discussed with the patient and parent/caregiver, and toothpastes and mouthwashes should be thought of as medications.
 - True
 - False

Building Bridges: Dental Care for Patients with Autism

Name: _____ Title: _____ Specialty: _____

Address: _____ E-mail: _____

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Requirements for successful completion of the course and to obtain dental continuing education credits: 1) Read the entire course. 2) Complete all information above. 3) Complete answer sheets in either pen or pencil. 4) Mark only one answer for each question. 5) A score of 70% on this test will earn you 4 CE credits. 6) Complete the Course Evaluation below. 7) Make check payable to PennWell Corp.

Educational Objectives

1. Know the prevalence of autism and what ASDs encompass.
2. Recognize the signs and symptoms of autism.
3. Evaluate the abilities of the patient with autism in order to provide dental care.
4. Discuss and demonstrate appropriate home care with patients with autism and parents/caregivers.

Course Evaluation

Please evaluate this course by responding to the following statements, using a scale of Excellent = 5 to Poor = 0.

1. Were the individual course objectives met?	Objective #1: Yes	No	Objective #3: Yes	No		
	Objective #2: Yes	No	Objective #4: Yes	No		
2. To what extent were the course objectives accomplished overall?	5	4	3	2	1	0
3. Please rate your personal mastery of the course objectives.	5	4	3	2	1	0
4. How would you rate the objectives and educational methods?	5	4	3	2	1	0
5. How do you rate the author's grasp of the topic?	5	4	3	2	1	0
6. Please rate the instructor's effectiveness.	5	4	3	2	1	0
7. Was the overall administration of the course effective?	5	4	3	2	1	0
8. Do you feel that the references were adequate?		Yes		No		
9. Would you participate in a similar program on a different topic?		Yes		No		
10. If any of the continuing education questions were unclear or ambiguous, please list them.	_____					

11. Was there any subject matter you found confusing? Please describe.

12. What additional continuing dental education topics would you like to see?

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