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Helping the Special Needs Patient Maintain Oral Health

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Continuing Education Units: 2 hours

Poor oral hygiene and dental disease may be more prevalent in patients with disabilities due to the effects of their condition and medication on the oral environment. This course provides dental professionals with information to help the patient with special needs and the caregiver attain the appropriate knowledge to treat and maintain good oral health.

Conflict of Interest Disclosure Statement

- The author reports no conflicts of interest associated with this course.

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Overview

Poor oral hygiene and dental disease may be more prevalent in patients with disabilities due to the effects of their condition and medication on the oral environment. Malocclusion and/or teeth with developmental defects, oral habits such as pouching of food, and even poor physical coordination contribute to poor oral hygiene. Some patients cannot grasp a toothbrush or reach their mouth; their lack of ability for self–care may have serious health implications. Assessment and education skills are essential to develop a home care routine that patients and/or caregivers can follow to help prevent disease and maintain oral health. A daily preventive program must be effective, simple to use, and low in cost.[1] This course provides dental professionals with information to help the patient with special needs and the caregiver attain the appropriate knowledge to treat and maintain good oral health.

Learning Objectives

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

- Assess patient needs based on oral conditions and abilities.
- Develop home care techniques and modifications that will best fit patient abilities.
- Provide instruction for oral self–care to patients with physical or mild to moderate mental disabilities.
- Provide education and oral care instruction to caregivers of dependent patients.
- Motivate patients and caregivers to maintain oral health.
- Aid in the preventive of infection and tooth loss.
- Avoid the need for extensive treatment that patients may not be able to tolerate due to their physical or mental condition.[2]
- Incorporate the use of sealants, antimicrobial agents, fluoride, and diet counseling as part of a total prevention program.
- Encourage regular dental visits to evaluate effectiveness of the program.

Course Contents

Glossary

Malocclusion – imperfect contact of the mandibular and maxillary teeth

Obstacle – hindrance

Plaque biofilm – mass of microorganisms

Patient Assessment

Before any prevention program can be developed, the dental team must determine the patient's needs based on their oral condition and ability. A dental exam is essential to determine if treatment is necessary. Once treatment is completed, disease prevention and control is the key. "The components of an effective program are the same for all persons regardless of disability, but their delivery and application must be altered to meet the needs of those who are disabled."[1]

An ideal prevention program, which may involve a parent or caregiver, should include education, plaque biofilm control, chemical agents such as antimicrobials and home fluorides, and diet counseling. Sealants should be considered for caries control and can only be professionally applied in the dental office. Regular dental visits should be part of the plan to evaluate effectiveness of the program and make modifications when necessary.[1,2,4]

Assessment and skill evaluation can help determine if a patient can do what is requested of them. Box 1 outlines considerations for effective program planning. Can the patient brush and floss on their own or are they partially or totally dependent on a caregiver? It is vital to observe the current technique. How does a patient's disability affect self–care and what modifications will be necessary to enable a patient to be as independent as possible? (See Table 1 - Skill Level Evaluation) When designing any device for self–care it is important to judge how the patient's physical and mental limitations will affect its use.

Skill Evaluation

Range of Motion

Obstacle – Inability to reach the mouth with arms and hands.[1-5]

Evaluation Technique – Judge the patient's ability to extend his or her arms and reach their mouth. Patients with muscular impairment may be able to bend their arms halfway across the body but only elevate their arms to the level of the heart. Their range of motion will determine the needed length of the device.

Box 1. Planning Considerations[2]

- What is the patient's skill level — High, Moderate, or Low? (See Table 1)
- How does the patient's disability affect their self–care efforts (disability — mental, physical or sensory)?
- What is the dental health of the caregiver and how does he or she feel about dentistry?
- What techniques will be the best fit for the patient and/or caregiver?
- What modifications will be necessary to help the most independence for the patient?

Table 1. Skill Level Evaluation[2]

High Level

The patient can brush and floss his or her own teeth.
The patient may only need encouragement, motivation and supervision.

Medium Level

The patient needs partial care.
The patient can carry out part of his or her oral hygiene.
The patient requires considerable training, assistance and direct supervision.
Assistance for the patient may be verbal or require hand–over–hand.

Low Level

The patient requires total care provided by a parent or caregiver.

Solution – An extended handle made from plastic rulers or rods are available at most hardware stores, or use a wooden spoon. Attach the extension piece to the toothbrush and floss holder with heavy electrical tape.

Obstacle – Unable to bend at the elbow or wrist.
Evaluation Technique – Have the patient try to reach certain areas of their mouth by bending their arm and wrist (posterior of the maxillary buccal and mandibular lingual may be the most difficult areas for the person to reach).

Solution – Use a compact head toothbrush for a better intraoral fit. An angle can be bent into the toothbrush handle by gently heating above a flame or by holding the handle under very hot water until it becomes pliable. A commercially available toothbrush, such as the Surround® Toothbrush with two opposing brush heads, shown in Figure 1A and 1B, is designed to clean the buccal, occlusal and lingual tooth surfaces at the same time. The handle is extra long and curved to permit an easy, controlled grip.

Grip Strength

Obstacle – Difficulty holding a device that is too narrow or small.[1-5]
Evaluation Technique – Have the patient grasp various sized balls (tennis balls, soft balls and golf balls are examples) to determine extent of finger closure around the ball. To determine a patient's strength and how long he or she can grasp a device, hold the patient's hand gently and ask him or her to squeeze with as much force as possible for one minute. Patients with arthritis or neuromuscular disorders may have difficulty with this task.

Solution – Figures 2A and 2B illustrates materials that will provide bulk to assist with grip. Bicycle grips, balls and Styrofoam® molds come in several

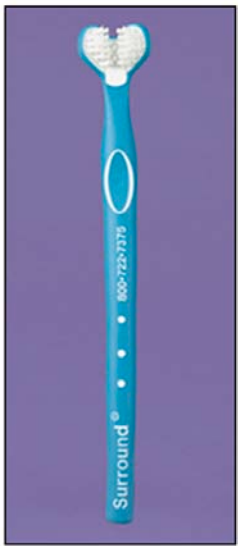

Figure 1a. Surround® Toothbrush.
Courtesy of Specialized Care Co. Inc. Hampton, NH

Figure 1b. Surround® Toothbrush on model.
Courtesy of Specialized Care Co. Inc. Hampton, NH

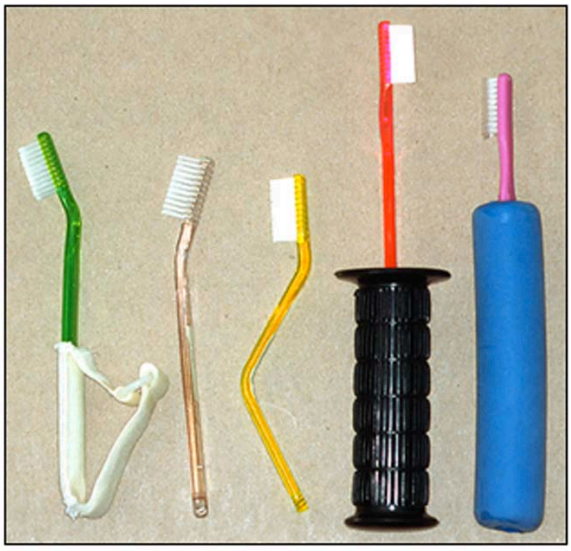

Figure 2a. Various modified toothbrushes.
Courtesy of Paul Burtner, DMD

Figure 2b. Extra Grip™ toothbrush holder.
Courtesy of TePe Oral Health Care, Inc.

sizes, weights and textures and can be found in most hardware and craft stores. Silicone putty molded with the patient's hand around a toothbrush handle will provide a custom alternative. These materials are ideal because they are inexpensive and can easily be cleaned or replaced. For patients who cannot hold a device on their own, a universal strap made with a Velcro® strip can be attached to their hands.

To help get toothpaste out of the tube the cap can be enlarged with acrylic, a tube squeezer can be used, or consider a pump action toothpaste dispenser or a tube with a snap cap.

Design Characteristics of Self-Care Devices

When designing or choosing self-care devices the following points should be taken into consideration.[1-5]

- The use of a soft bristle, rounded, nylon toothbrush is the best choice.
- The size of the toothbrush head is determined by the patient's mouth size and their ability to open.
- The device should not cause damage to the teeth and/or gingival tissues.
- The material used for modification should be readily available, lightweight and inexpensive.
- The device should be easily constructed with replaceable parts (parts that become worn out or dirty should be easily replaced).

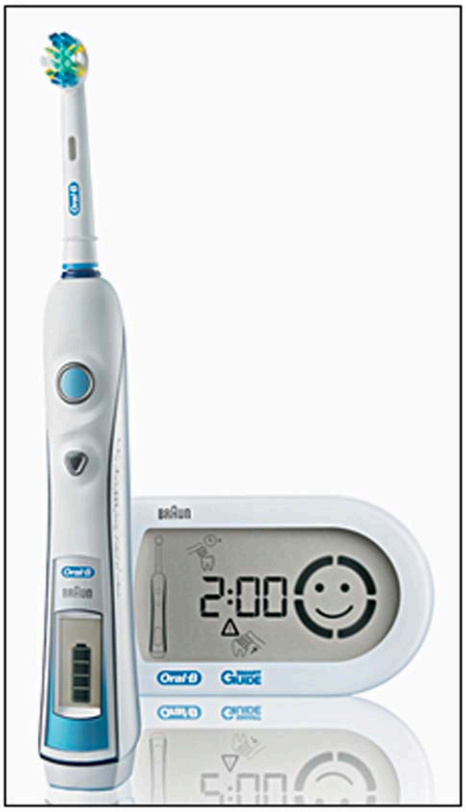

Figure 3a. Oral-B® Professional Care SmartSeries 5000.
Courtesy of P&G

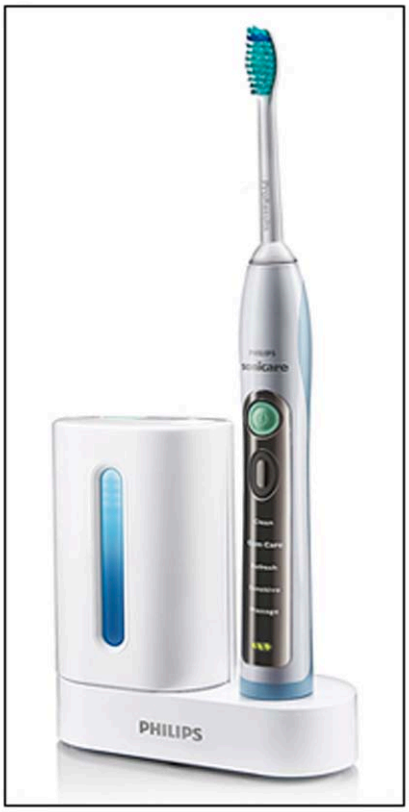

Figure 3b. Philips Sonicare FlexCare+ with sanitizer.
Courtesy of Philips Sonicare

- The device should be easy to use and have minimal set–up time.

Powered devices may offer an advantage to patients with decreased dexterity. If the patient or their caregiver can properly access the oral cavity then the brush head or flossing device can do the majority of the work. There are many types of powered devices and the dental team must be able to provide information on several options. Whether the patient chooses a battery operated or rechargeable unit, a point of focus should be on how the working end operates to prevent damage to the oral tissues. The following points should be considered.

- Many models of power brushes have sensors that alert the user when too much pressure is being used. This can be helpful to the caregiver who cannot feel if excess pressure is being exerted on the teeth and gingiva (Figures 3A and 3B).
- When manual flossing is not an option, consider the use of an oral irrigation system, such as a Waterpik® machine or Phillips Sonicare AirFloss device. A cordless water flosser can be used with a bowl to catch the water when the patient cannot lean over a sink (Figures 4A, 4B, and 4C).
- Before recommending any power devices, observe patients to see if they have the strength to hold it and how long they can hold it. Instruct caregivers on proper use.
- Patients with disabilities such as autism or Alzheimer's disease may not tolerate the noise and vibration of such devices. Before investing in a high-end device, it is best to purchase a less expensive model and be assured that the use of power devices can be tolerated by the patient.

Dental professionals realize how difficult it is to change behavior to maintain oral health. Change is effected through education as a major part of

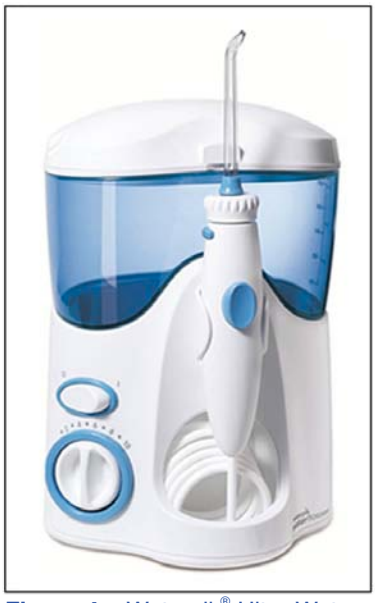

Figure 4a. Waterpik® Ultra Water Flosser.
Courtesy of WaterPik, Inc

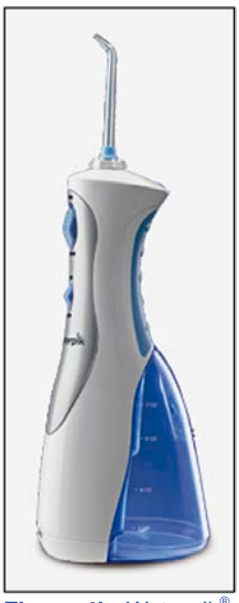

Figure 4b. Waterpik® Cordless Plus Water Flosser.
Courtesy of WaterPik, Inc

Figure 4c. Philips Sonicare AirFloss.
Courtesy of Philips Sonicare

any oral hygiene program, whether it is directed at the disabled patient or the caregiver or both. It's important that the person being taught understands the reasons for good oral health, why any change in behavior is necessary, and the consequences of continuing poor oral hygiene conditions. Observe the patient's or caregiver's technique directly and if needed make the changes in small increments. If possible, work within what is already being done to minimize the number of changes.[6]

Instruction for the Patient

Patients should be encouraged to do as much on their own as they are able. This reduces dependency on others and may result in increased motivation and feelings of higher self–esteem and accomplishment. Determine the patient's abilities to understand and follow directions by asking questions during skill evaluation. Access if they respond appropriately to verbal commands and instruction. Those with mild or moderate mental disability will be able to manage most toothbrushing methods such as scrub, sulcular, rolling, and circular methods.

Learning tools can include use of pictures and/or modeling of others. The tell–show–do method of teaching may be effective. Each step of the procedure is explained and shown to the patient and then the patient demonstrates the activity. Disclosing tablets or solutions are helpful to see areas of plaque biofilm. To encourage brushing for an adequate length of time, use an egg timer and increase the amount of time slowly starting with 30 seconds, then 60, then 90 and finally 120 seconds. Another method would be to play the patient's favorite song and instruct them to brush until the song is over. Daily supervision is necessary to ensure effectiveness.

The patient with more serious mental or physical impairment may not be able to perform successfully on their own. If the patient is dependent on someone else, then it is best if both the patient and caregiver(s) understand the causes and techniques for prevention of dental disease.[2,4,5]

Instruction for Caregiver

Plaque biofilm formation and disease development should be explained to the caregiver. Learning about the basic of oral health and the signs of disease is necessary. Raise the dental awareness of caregivers and motivate them to take good care of their own mouths

in order to provide better care to their patient's mouths. If the caregiver must employ positioning and restraint techniques to provide daily oral care, the following points must be considered.

- A review of the state law addressing informed consent before using any type of restraint.
- The procedure should not be rushed; plan for a proper time and allow for stops and breaks.
- The procedure must be explained as much as possible to the patient.
- Appropriate head stabilization is necessary to allow for proper brushing and injury prevention.
- Demonstrating proper lip and cheek retraction techniques to access the mouth which will allow for proper toothbrush placement.

Optimum visibility to confirm toothbrush placement is necessary for effective plaque biofilm removal.[1,3,4,5]

Location and Positioning of Oral Care

Depending on the patient's general health status, determine what location will work best for oral care. A sink may not be necessary; the patient can expectorate into a cup or the caregiver can work with a bulb syringe, basin, cup, and towel. If the patient is in a wheelchair, remaining seated may be the best place to provide care. The patient can sit on the floor or in a straight–back chair. Reclining on the couch, bed, or in a beanbag chair may work for patients who have difficulty sitting up straight. This seating method lets them relax without the fear of falling.

Whatever area is chosen, caregivers need to adjust their positions as necessary. If the patient is in a chair, wheelchair, sitting on the floor (Figure 5), or using a bean bag chair, the caregiver should be positioned behind the patient. If the patient is lying on a couch, a pillow should be placed on the caregiver's lap for the patient's head to rest on (Figure 6). If the patient is in a bed, the caregiver should stand beside the bed. Turn the patient's head to the side and place a towel under his or her chin. Have a basin ready for rinsing options. Before any care is attempted first approach the patient from the front to explain the procedure.

Procedure

Stabilizing the patient's head can be accomplished with the use of pillows, or a chair, or a couch with a high back. When standing behind the patient, the caregivers can wrap a free arm around the patient's head and cradle their chin in the caregiver's hand. Their mouth can be viewed from above. The caregiver will apply gentle downward pressure to the chin with their four fingers placed on the mandible. Their thumb will be placed in the vestibule to retract the lip. The caregiver should not try to stop all patient movement; it is better to go with the movement. Should the caregiver try too hard, an increase in pressure can agitate the patient and increase their movements. The procedure may need to be stopped frequently to allow the patient to take deep breaths and relax.

The patient's tongue movements can interfere with reaching the lingual surfaces. The caregiver

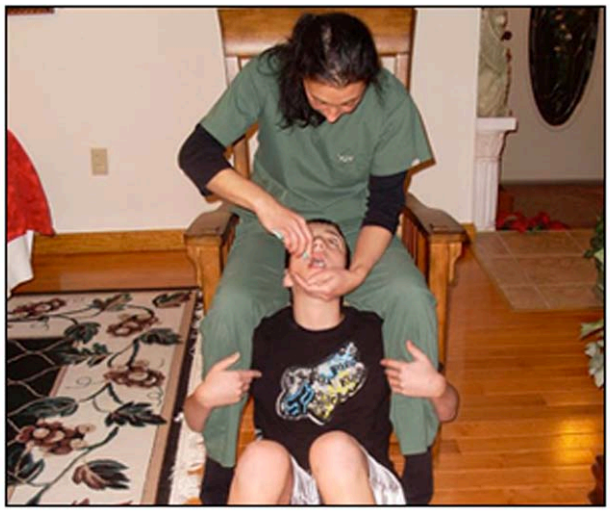

Figure 5. Patient sitting on floor.
Courtesy of David Tesini, DMD, MS

Figure 6. Patient in caregiver's lap.
Courtesy of David Tesini, DMD, MS

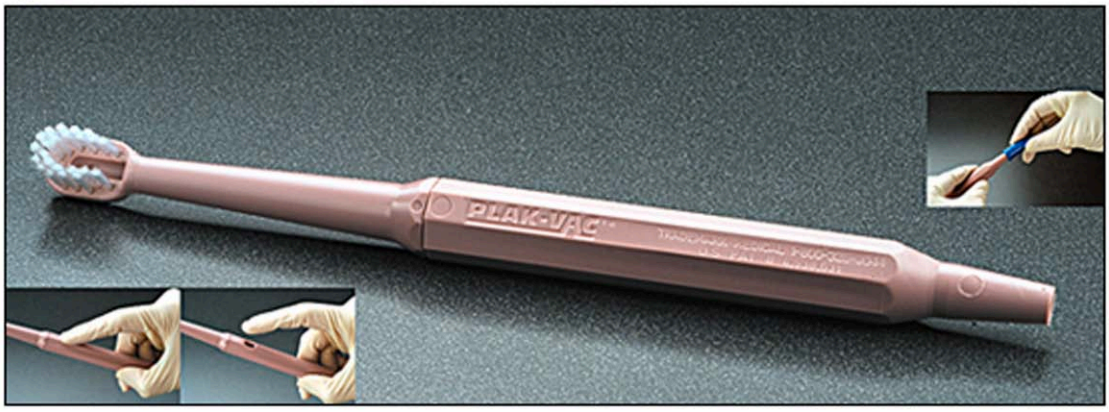

Figure 7. Plak-Vac® suction toothbrush.
Courtesy of Trademark Medical, LLC

should allow the patient to keep their teeth together until lingual access is necessary. This reduces stress for the patient and may provide better visualization. A mouth prop made of a soft rolled face cloth or gauze may be used to help patients keep their mouths open. The caregiver must never place their fingers between the patient's maxillary and mandibular teeth. Caregivers should be focused on the procedure and watch their patient's mouth in relationship to their finger proximity and placement.

Control of the patient's hands is essential for patient and caregiver safety. If necessary, a partner can gently hold the patient's hands while care is provided. If more restraint is needed, the partner can cross the patient's arms and bring them together in the center over his or her body. Avoid holding the patient at the joints; it is safer to secure the patient's arms by holding the forearm between joints. The caregiver(s) should talk slowly and softly in a monotone to control and calm the patient. Holding a patient's head or hands is considered a form of restraint. Remember, it is important to check with state legal considerations for informed consent before using any type of restraint.

Additional Considerations

When providing oral care, the caregiver needs to wear proper personal protective equipment (PPE) that includes a disposable gown, gloves, mask, and a face shield or safety glasses that can be disinfected after use. A flashlight or goose neck lamp will provide better visibility during the procedure. The caregiver should disinfect any equipment they touch to maintain a clean environment.

The caregiver should be careful to protect the patient's airway and avoid aspiration of water or toothpaste. For patients at risk for aspiration of fluids, toothbrushes with suctioning devices such as the Plak–Vac® (Figure 7) are available.[7] The caregiver should consider the use of a non-foaming, ingestible toothpaste. A regular toothpaste should be used only for patients who can expectorate. Very small amounts of water should be utilized during the procedure. Foam from toothpaste is difficult to remove, can interfere with visibility, and might be aspirated. While the type of toothpaste is important to consider, emphasis should be placed on the technique and action of the brush to remove plaque biofilm.

The dental team should encourage the caregiver to use a disclosing agent to visualize plaque biofilm. Using a disclosing agent will ensure that procedure is being completed properly. Caregivers who are able to floss the teeth should always use floss holders to keep their fingers from between arches and avoid being bitten.

Fluoride, Antimicrobials and Diet Counseling

Fluoride treatments should be considered for caries prevention. The person's need and disability will determine the type of application. A fluoridated mouth rinse before bedtime can be used by the patient who is mentally competent and is able to

expectorate. A chewable fluoride tablet is a good choice for the patient who can chew and needs a supplement. Alternatives are a fluoride varnish, a swab, or a daily brush-on gel.[2] Brushing with a fluoride gel instead of toothpaste may be more appropriate for patients dependent on caregivers. Whatever type of fluoride or application used, care should be taken to be sure the patient does not ingest the fluoride.

The use of antimicrobial agents, such as chlorhexidine, cetylpyridindium chloride (CPC) and essential oils, has been proven[8,9] effective in reducing the severity of plaque accumulation and gingivitis. For those who cannot swish and rinse, alternative methods for application are a spray, swab, or toothbrush. Cautions to consider before using chlorhexidine include staining and possible taste alteration. Listerine and Crest Pro-Health Multi-Protection Rinse (alcohol-free) are two examples of over-the-counter mouthwashes that have been proven effective against plaque biofilm, are inexpensive to use, and have better taste and stain profiles than chlorhexidine.[10] Any antimicrobial agent should be prescribed for only a specific length of time and be monitored for effectiveness.[4]

Diet instruction is another important part of a total preventive program. Eating habits, cultural beliefs, customs, and financial resources are factors that should be evaluated before recommendations can be made. A patient's inability to chew may lead to the choice of a soft carbohydrate–rich diet. Sweets used as rewards should be discouraged. Many medications contain sugar, therefore rinsing with water after dosage should be encouraged. All of these issues place the patient at risk for caries.[2] The dental team should counsel with the caregiver(s) on all these issues to provide options for the best patient care protocols.

Conclusion

For the patient with a disability there are many factors that can contribute to poor oral health. Once any treatment is completed, it is essential for the dental professional to be able to develop a total daily prevention program for that patient based on need and ability. Devices to aid in overcoming obstacles to oral hygiene are available commercially. Using imaginative techniques can often provide an effective alternative to help the patient and/or a caregiver achieve optimum oral health. If a caregiver is involved, both the patient and caregiver should be educated in all aspects of an oral health care program. Research is continuing on the use of custom tray-applied 10 percent carbamide peroxide gels for reduction in caries and periodontal disease. The increase in salvia and plaque pH may help to control caries and improve gingival health. Although not an option for all special needs patients, if is definitively something to consider as more research becomes available.[11]

Course Test Preview

To receive Continuing Education credit for this course, you must complete the online test. Please go to www.dentalcare.com and find this course in the Continuing Education section.

1. Poor oral hygiene and dental disease may be more prevalent in patients with disabilities due to _____.

a. the effects of their condition
b. their medication(s)
c. A and B
d. None of the above.

2. Poor oral hygiene may be contributed to _____.

a. malocclusion or teeth with developmental defects
b. oral habits
c. poor physical coordination
d. All of the above.

3. In developing a prevention program, the dental team must _____.

a. assess the education skills and patient's ability
b. determine the patient's needs based on their oral condition
c. present a program that would be effective and simple
d. All of the above.

4. An ideal prevention program should include _____.

a. educating the parent and or caregiver on plaque control
b. chemical agents and diet counseling
c. A and B
d. None of the above.

5. When designing a device for self-care, it is important to _____.

a. judge the patient's physical and mental limitations
b. implement a reward system
c. encourage the patient to give the caregiver full control over their care
d. dismiss the medical findings

6. When evaluating the skill level of the patient, the _____.

a. low level reveals the patient can brush and floss their own teeth
b. medium level indicates the patient can carry out part of his or her oral hygiene
c. high level means the patient requires total care by the caregiver
d. low level patient requires considerable training

7. Skill evaluation and the design of self-care devices for patients include _____.

a. their range of motion
b. their grip strength
c. A and B
d. None of the above.

8. The "range of motion" determines the _____.

a. length of the self-care device
b. width of the self-care device
c. obstacle is too great for a self-care device
d. None of the above.

9. To determine the extent of finger closure, _____.

a. hold the patient's hand and ask him or her to squeeze
b. have the patient grasp various sized balls
c. have the patient reach certain areas of their mouth by bending their arm and wrist
d. the extent of finger closure is not important when designing a self-care device

10. Materials to provide bulk and assist with grip might include _____.

a. bicycle grips
b. balls
c. Styrofoam® molds
d. All of the above.

11. If changes need to be made in the patient's or caregivers oral hygiene technique, they should be made _____.

a. in small increments
b. working within what is already being done
c. in lengthy full detailed explanation
d. A and B

12. An effective modeling tool for a patient/caregiver to learn proper techniques is _____.

a. tell–show–do method
b. PowerPoint presentation
c. video that can be watched at their convenience
d. Special needs patients should not be encouraged to maintain their own oral health.

13. Positioning and restraint techniques used by a caregiver for providing daily oral health care must include _____.

a. review of state legal considerations for informed consent
b. explaining the procedure to the patient
c. head stabilization
d. All of the above.

14. Caregivers must adjust their positions as necessary. It is recommended that they be positioned _____.

a. behind the patient but approach from the front to explain the procedure
b. in front of the patient but approach from the side to explain the procedure
c. on the side but approach from the back to explain the procedure
d. behind the patient but approach from the side to explain the procedure

15. When providing oral care, the caregiver needs to wear _____.

a. gloves
b. gown, gloves, face shield or safety glasses, and mask
c. gloves and safety glasses
d. personal protective equipment is not necessary

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