Dear Synapse Members

So you survived the chocolate onslaught of Easter. With all the public holidays, I would guess that everyone is well rested and ready to ease into yet another four day week.

As I mentioned last month, SADA lost their case against the HPCSA and all dental assistants have to be registered.

This month our newsletter has little new information, but a nice revision of important information. After doing the research for this newsletter, I am looking forward to implement a caries management by risk protocol in our practice. Although we are effectively doing it, it is not official. It will also be a nice marketing tool.

We are still not able to print our own certificates, so please contact me if you need a certificate.

Until next month: Love, light and laughter

Groete

Carin

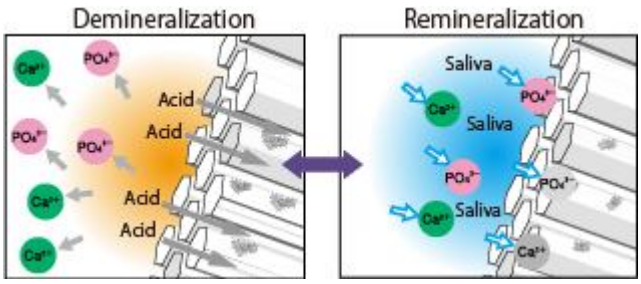
The A-Z of Caries Prevention
ADHD and its challenges

3 Clinical points

The Demineralization Process

Dental caries is a transmittable, infectious disease of teeth caused by acid producing bacteria. Streptococci mutans is the principle microorganism that leads to this destruction. As the pH of the saliva is lowered by these acid producing bacteria, the integrity of the enamel is affected, leading to demineralization.

Tooth enamel is composed almost entirely (97% by weight) of a calcium phosphate mineral in the form of carbonated hydroxy apatite. The loss of calcium and phosphate from the enamel results in the development of enamel lesions (demineralization). Remineralisation is a deposition of tooth minerals back into the demineralised tooth structure in order to arrest the caries process. Demineralization and remineralisation need to be balanced in order to control the progression and reversal of carious lesions. If the demineralization process predominates, the initial caries lesion progresses into cavity formation.



Fluoride and saliva contribute to remineralization. Fluoride is one of the best defences against dental caries in children and adults. The highest concentration of fluoride is found in the outermost layer of enamel. Fluoride improves the crystallinity of the apatite structure, which provides a profound effect on the increasing structural stability. Saliva functions as a lubricant and cleanser in protecting teeth. Saliva also buffers the acids and supplies minerals to replace calcium and phosphate that become dissolved during the demineralization process.

Dental caries is a transmittable bacterial disease that is frequently spread from mother to child—a process called vertical transmission. The Dental team is key players in the fight against dental caries, which depends on implementing an effective caries prevention protocol.

Caries management by risk assessment (CAMBRA) is an evidence-based protocol focused on preventing, reversing, and treating caries before the disease process causes irreversible damage to tooth structure. CAMBRA is unique because it focuses on the entire caries disease process instead of the progression of the carious lesion itself. The CAMBRA protocol treats caries as a highly infectious and transmittable bacterial disease that can be effectively treated and/or reversed. While traditional caries treatment focused on restoring the cavity, CAMBRA focuses on prevention by identifying at-risk patients and implementing strategies to prevent or reduce caries development.

All types of patients—from a 6-year-old child with newly erupted permanent teeth to a cancer patient undergoing head and neck radiation—can benefit from a customized caries risk assessment.

How did CAMBRA start?

CAMBRA is based on Featherstone's caries balance theory, and uses risk assessment to determine treatment decisions. Dental professionals from five California dental schools met informally to discuss how to improve caries management standards. The group branched out to create a consortium that included education, research, and clinical practice. Their efforts resulted in furthering the reach of CAMBRA through conferences, publication of journal articles, and public/private partnerships.

Caries Risk Assessment

Dental caries is the most common disease affecting children. Although most clinicians see the effects of caries infection in all age ranges, they are more apparent in children, where the disease process begins very early in life.

Today, caries risk assessment forms are easily accessed from the American Academy of Paediatric Dentistry (Tables 1 and 2 below), American Dental Association (ADA), and California Dental Association. They provide a standardized format for assessing and documenting caries risk. Divided by age, the dental professional notes each patient's risk factors on the form and then tallies the results, which categorize the patient as low, moderate, or high risk. Prevention and treatment plans are then implemented based on the designated category of risk.

This is a sample and some factors might not be relevant in SA

Table 1. American Academy of Pediatric Dentistry (AAPD) caries-risk assessment form for patients 5 years and younger.
Reprinted with permission from the AAPD.

Factors	High Risk	Moderate Risk	Protective
Biological			
Mother/primary caregiver has active caries.	Yes		
Parent/caregiver has low socioeconomic status.	Yes		
Child has >3 between meal sugar-containing snacks or beverages per day.	Yes		
Child is put to bed with a bottle containing natural or added sugar.	Yes		
Child has special health care needs.		Yes	
Child is a recent immigrant.		Yes	
Protective			
Child receives optimally-fluoridated drinking water or fluoride supplements.			Yes
Child has teeth brushed daily with fluoridated toothpaste.			Yes
Child receives topical fluoride from health professional.			Yes
Child has dental home/regular dental care.			Yes
Clinical Findings			
Child has >1 decayed/missing/filled surfaces.	Yes		
Child has active white spot lesions or enamel defects.	Yes		
Child has elevated mutans streptococci levels.	Yes		
Child has plaque on teeth.		Yes	

Circling those conditions that apply to a specific patient helps the practitioner and parent understand the factors that contribute to or protect from caries. Risk assessment categorization of low, moderate, or high is based on preponderance of factors for the individual. However, clinical judgment may justify the use of one factor (eg, frequent exposure to sugar-containing snacks or beverages, more than one dmfs) in determining overall risk.

Overall assessment of the child's dental caries risk: High ☐ Moderate ☐ Low ☐

Dimensions of Dental Hygiene, February 2012

Table 2. AAPD caries-risk assessment form for patients 6 years and older.
Reprinted with permission from the AAPD.

Factors	High Risk	Moderate Risk	Protective
Biological			
Patient is of low socioeconomic status.	Yes		
Patient has >3 between meal sugar containing snacks or beverages per day.	Yes		
Patient has special health care needs.		Yes	
Patient is a recent immigrant.		Yes	
Protective			
Patient receives optimally-fluoridated drinking water.			Yes
Patient brushes teeth daily with fluoridated toothpaste.			Yes
Patient receives topical fluoride from health professional.			Yes
Additional home measures (eg, xylitol, calcium phosphate, antimicrobial).			Yes
Patient has dental home/regular dental care.			Yes
Clinical Findings			
Patient has >1 interproximal lesions.	Yes		
Patient has active white spot lesions or enamel defects.	Yes		
Patient has low salivary flow.	Yes		
Patient has defective restorations.		Yes	
Patient wearing an intraoral appliance.		Yes	

Circling those conditions that apply to a specific patient helps the practitioner and patient/parent understand the factors that contribute to or protect from caries. Risk assessment categorization of low, moderate, or high is based on preponderance of factors for the individual. However, clinical judgment may justify the use of one factor (eg, >1 interproximal lesions, low salivary flow) in determining overall risk.

Overall assessment of the dental caries risk: **High** ☐ **Moderate** ☐ **Low** ☐

***Dimensions of Dental Hygiene*, February 2012**

You can look at other modified examples of this form at
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3470809/table/T2

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3470809/table/T3

The most important indicator of future caries risk is previous caries experience. This is very important when treating children and adolescents, but has limitations when treating infants/toddlers. Risk factors are identified as biological (susceptible host, diet, microflora levels, and socioeconomic status) and clinical (plaque accumulation, white spot lesions, pre-cavitated lesions, and caries). Additional factors include presence of orthodontic appliances, xerostomia (disease-related or medication-induced), special health care needs, bottle or nursing habits, incipient lesions (both radiographic and clinical), and caries within the first 3 years.

The evaluation of the bacterial levels present in saliva is an important factor in caries risk assessment. Saliva serves many functions, including lubrication of the mucosa and helping in mastication of food, swallowing, and even speech. Saliva also protects teeth by acting as a buffer and neutralizing the acids produced during the intake of various foods and beverages, thus aiding in the remineralisation of the tooth surface. The presence of *Streptococcus mutans* in saliva and plaque—regardless of whether caries is present—is an indicator of risk. A number of commercially available kits are available that analyze the microflora present in a patient's saliva.

The frequency of food and liquid intake, especially snacks and sugary drinks, must be evaluated. The consumption of fermentable carbohydrates significantly contributes to the

development of caries. Bacteria use fermentable carbohydrates to produce acids, leading to enamel breakdown.

In order to promote better oral health, oral hygiene and overall self-care must also be assessed and appropriate instruction provided. The type of toothbrush, amount of fluoride-containing toothpaste used during brushing, frequency of brushing and flossing, use of irrigation devices, and fluoride supplements and rinses used should be addressed for each individual. Previous caries experience of patients, their caregivers (mainly mothers), and siblings must also be considered.

Preventive Tools and Treatment

An aggressive preventive approach should become part of routine recare visits for all children—regardless of caries risk status—and may include saliva analysis, diet assessment, and patient/parent education. As seen in last month's newsletter, diet analysis and recommendation tools are available e.g. www.choosemyplate.gov This website provides information both for consumers and professionals.

Prevention-based office visits include professional prophylaxis, topical fluoride treatment, or fluoride varnish application. Pit and fissure sealants are also effective in caries prevention. Sealants can be placed on non-carious primary and permanent posterior teeth or early non-cavitated lesions on permanent posterior teeth. Detecting early minimal caries and placing a sealant over the lesion can inhibit bacteria growth and arrest the lesion's progression. This is key in the quest to avoid restorative care. We look at the use of fissure sealants in more depth later in this newsletter.

Home Care instructions

Home care for patients includes the recommendation of gum, hard candies, or lozenges containing polyols, such as xylitol or sorbitol, for children older than 5 years. The gum should be chewed for at least 10 minutes following meals. Xylitol is a non-cariogenic sweetener, meaning the bacteria cannot ferment it. They can't eat it and produce acids. It is comparable to sucrose except that Xylitol has one carbon less and it's not fermentable. Humans can absorb it and take some energy from it, but the bacteria can't. Not only are the bacteria not able to produce acids and not able to metabolize it, Xylitol has an antibacterial effect. It seems to inhibit their ability to adhere and grow in the plaque.(Disrupting biofilm) Two studies showed that if a mother takes Xylitol four times a day during the first years of her child's life, the child has much less cariogenic bacterial growth and a decreased incidence of caries later on. It is pretty amazing that a substance that tastes good enough to be used in confectionary and chewing gum is one that the bacteria can't feed on and that also has antibacterial properties. To maximize benefits, a dose of 5 g to 8 g xylitol per day divided over two or three doses must be ingested.

Very young children with a high caries risk are not able to take full advantage of the protective factors offered by high fluoride dentifrices, chlorhexidine rinses, or home fluoride rinse therapy. A balanced diet and xylitol wipes for cleaning the teeth are simple measures that can be incorporated into an oral hygiene routine for this early age. A more effective measure is the caries assessment of the primary

caregiver. Treating the caregiver who is at high risk for caries helps eliminate the vertical transmission of the infectious agents (cariogenic bacteria) to the infant.

In a later newsletter, we will look at the use of Xylitol in more depth.

Patients at low to moderate risk of caries should use 0.05% over-the-counter fluoride rinses.

Useful sites to look at are: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3470809/table/T4

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3470809/table/T5

Research shows that while the use of chlorhexidine-containing products is effective in preventing root caries, they may not significantly reduce coronal caries so their implementation should be on a case-by-case basis. Fluoride supplementation in areas without community water fluoridation should be considered. For those at high risk of caries, prescription high-dose fluoride topical pastes or dentifrices for at-home use may be helpful. Adding products that contain calcium and phosphate technologies to the self-care routine may also help support caries prevention.

Young patients may be more inclined to brush with an electric toothbrush as opposed to a manual brush. Electric toothbrushes may also allow for the deeper penetration of fluoride into interproximal biofilm, thereby increasing the tooth's exposure to fluoride.

A study done by the CDA Foundation in 2010 concludes: Improving expectant mothers' oral health by reducing pathogenic bacteria levels in their own mouths can delay the acquisition of oral bacteria in their children and may delay the development of early childhood caries

Let's look closely at the use of fissure sealants

Good reference sites for patients are

http://www.dentalhealth.org/tell-me-about/topic/routine-treatment/pit-and-fissure-sealants

http://www.dentalhealth.ie/download/pdf/fissure_sealant_booklet.pdf

SEALANT PLACEMENT

Sealants must remain in place and completely cover pits and fissures to be effective. The two factors most likely to affect sealant retention are proper application and the tooth's eruption status. While sealant placement is fairly uncomplicated, manufacturer instructions must be followed.

Sealants placed early in eruption are far more likely to need replacement. A study by Dennison et al reported that when an operculum (flap) existed over the distal marginal ridge of molars, the sealant replacement rate was 54%. In contrast, the replacement rate was 0% for a selected sample of sealants placed at later eruption stages over a 5-year period. This creates a dilemma for the practitioner because some permanent molars erupt with fissures that seem at risk of decay. Since they appear at-risk early in the eruption stage, the clinician may opt to seal such surfaces, knowing that replacement may be inevitable.

Sealant materials

Pit and fissure sealants today are composed of unfilled and filled resins and are available with fluoride-releasing or glass ionomer cements. Sealants are also available in a number of forms, including self-etching, wet/dry field, and coloured sealants.

Glass ionomer sealants can be applied in very moist conditions and in places where isolation is difficult. They have the ability to uptake and release fluoride, which may increase the ability of fissures to resist demineralization even after sealant material has deteriorated. Glass ionomer-based sealants generally release higher fluoride amounts than traditional materials. The retention of glass ionomer sealants, however, is not as good as traditional materials.

The latest innovation in sealants is the use of nanotechnology in the development of dental composites. The latest available nanomaterials, such as nanofillers and nanohybrids, can improve the hardness of sealants and ease of application. The addition of nanoparticles to resin composites may create flowable materials with both higher mechanical properties and better flow characteristics than traditional materials. Kuşgöz et al found that nanofilled resin-based fissure sealants showed improved surface hardness, in addition to similar or better fissure sealing ability in compared to other materials tested.

Tooth preparation

Different methods of preparing an enamel surface prior to sealant application have been studied, but no one technique has proven superior. As long as the enamel surface is well-cleaned, retention of the sealant should be optimal.

The conventional technique begins with a pumice prophylaxis, rinsing, drying, and acid etching with 37% phosphoric acid for 30 seconds to 40 seconds. Previous research shows that prophylaxis with pumice and a pointed bristle brush or rubber cup causes greater micro-leakage. It may be that a rubber cup or pointed bristle brush with pumice does not adequately clean pits and fissures so the etchant can produce a surface area receptive for bonding.

The enameloplasty sealant technique (EST) excavates the pits and fissures using a round tungsten carbide bur under low speed. The area is then acid etched for 30 seconds to 40 seconds with 37% phosphoric acid, rinsed, and dried. The main aim of EST is to remove debris and acquired pellicle,

open up the fissures, and increase the surface area. An increased surface area enhances sealant retention, thus decreasing micro-leakage. EST is able to decrease micro-leakage most likely because it enlarges the narrow fissures, allowing the sealant to easily penetrate and eliminate the acquired pellicle, thus increasing the sealant adaptability.

The fissurotomy technique uses a microshort tapered fissured bur to open up the fissures. Pits and fissures are prepared to the size of the bur head, followed by acid etching for 40 seconds with a 37% phosphoric acid, rinsing, and drying. Chaitra found that the fissurotomy technique caused the same amount of micro-leakage as conventional sealant technique, but significantly more than EST.

Air abrasion involves using alumina particles to open the pits and fissures with subsequent acid etching. A 2001 study revealed that micro-leakage can be prevented most effectively with a combination of mechanical air abrasion and chemical acid etching. Air abrasion is not as effective as acid etching in surface roughening, but when used in addition to acid etching, the technique further reduces micro-leakage. Future studies, possibly using scanning electron microscopy, to investigate the sealant–enamel interface, as well as resin tag formation using air abrasion, are needed.

Some level of micro-leakage occurs with all techniques, due to the flowable composite exhibiting some amount of polymerization shrinkage after light curing, which may create micro-gaps between the tooth and the composite.

The use of an Er:YAG laser in conjunction with acid etching is the most recent surface preparation technique used. The Er:YAG laser beam (k = 2940 nm) is absorbed by the intrinsic water in the enamel apatite. This leads to the generation of heat and water vapour, which causes micro-explosion and tissue removal. Khogli et al found that both Er:YAG laser and bur enameloplasty methods demonstrated no significant difference when compared to the conventional, non-invasive sealing technique. In contrast, previous studies reported enhanced pit and fissures sealant penetration when the bur enameloplasty was used.

In a recent systematic review of controlled clinical trials that compared different surface cleaning methods directly (surfaces cleaned with a handpiece and prophylaxis brush with pumice, compared to surfaces cleaned only by running an explorer along the fissures and cleaning with an air-water syringe) found no difference in sealant retention.

Research is being done at the old Dominion University on the use of plasma technology for the cleaning and preparation of fissures.

TOPICAL FLUORIDE APPLICATION

In clinical practice, patients often receive prophylaxis and fluoride treatment prior to examination by the dentist. In cases where a partially missing sealant is found after the fluoride treatment has been applied, a small touch-up sealant application may be necessary. It was thought that recently-applied fluoride application could render the enamel somewhat more resistant to an adequate acid etching procedure. A study done by Koh et al, however, concluded that topical fluoride has no clinical effect on the retention of pit and fissure sealants.

Sealants are an important tool in the caries prevention armamentarium, and dental hygienists, as the leaders in preventive dentistry, need to be well-versed on the latest research available on this technique.

Dental sealants & Bisphenol A

In recent years, Bisphenol A (BPA) and dental sealants have been a point of discussion for researchers, dental providers, and consumers. It is known that resin based dental sealant materials are based on Bisphenol-A (BPA). The BPA structure assembles a bulk, stiff chain that offers low susceptibility to biodegradation as well as great rigidity and strength- (in other words it aids in strength and durability)

BPA is a hormonally active, synthetic chemical and part of a broad group of chemicals known as endocrine disrupting compounds. More specifically, BPA is a xeno-estrogen, which mimics the relative bioactivity of estrogen. BPA is used in the manufacture of polycarbonate plastic and epoxy resins and leaches from food and beverage containers, baby bottles, children's toys and dental sealants. BPA can additionally be found in saliva in detectable amounts (micrograms) after placement of dental sealants. Even though the patient may come in contact with considerable amounts of unpolymerized monomers during the placement of composites, the release of uncured monomers after polymerization has been said to cause most of the unwanted effects. The Canadian Dental Association and the American Dental Association have issued statements on their websites regarding BPA in dental sealants. The American Dental Association states that consumers are not at risk from BPA exposure through dental materials because the exposure to BPA from dental sealants are low and infrequent and pose no know health threat.

It is however recommended that the sealant should be rinsed or wiped with moist cotton wool after curing, to reduce the risk of exposure to unpolymerized monomers

ADA's report on BPA: http://www.ada.org/1766.aspx

For more information, also look at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1513299

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CAMRA abstract from an article written by **Steven P. Hackmyer, DDS**, is an associate clinical professor in the Department of Developmental Dentistry at University of Texas Health Science Center, San Antonio. He previously taught at the University of Nevada Las Vegas, School of Dental

Medicine, where he was the principal investigator for a 3-year, $1.6 million United States Health Resources and Services Administration grant to fund a new pediatric dental residency program. Hackmyer is a diplomate of the American Board of Pediatric Dentistry and a fellow of the International College of Dentists. And **Bruce Riggs, DMD**, has been involved in pediatric dentistry for the past 25 years, and caries management by risk assessment (CAMBRA) is an important part of his Marietta, Ga-based pediatric practice. Riggs is a diplomate of the American Board of Pediatric Dentistry. Dedicated to community service, he also provides oral health care education in schools and day cares, donates dental services to Eastern European orphans, mentors high school students interested in dentistry, and offers merit badge counseling for the Boy Scouts of America.

What is ADHD?

ADHD is a neurobehavioral syndrome. Symptoms include difficulty staying focused and paying attention, problems controlling behavior, and hyperactivity (over-activity). Currently, there aren't any medical or psychological tests that provide an accurate diagnosis, but rather diagnosis depends on the presence of ADHD symptoms, ruling out other causes of the symptoms, and the use of interviews and rating scales to systemically collect information from parents and teachers about the exhibited behaviours and signs.

ADHD has three subtypes: predominantly hyperactive-impulsive, predominantly inattentive, and combined hyperactive-impulsive and inattentive. Children with the predominately inattentive subtype are less likely to act out or have difficulties getting along with other children. They often sit quietly, but they are really not paying attention. Therefore, children with this subtype may be overlooked, thus eliminating the chance for early intervention. Combined hyperactive-impulsive and inattentive ADHD is the most common type found in children.

Children with predominantly hyperactive-impulsive ADHD would show the following symptoms:

- Talk non-stop
- Constantly moving- touching or fidgeting with anything in sight
- Have difficulty sitting still
- Have problems performing quiet tasks or activities
- Blurts out inappropriate comments, show emotions without restraint, and act without regard for consequences.
- Little patience
- Often interrupts conversations or other’s activities.

Causes

ADHD is thought to be caused by problems in regulating two neurotransmitters—dopamine and norep inephrine—which may affect the ability to focus and pay attention to tasks

Behavioral

Children with ADHD typically have significantly increased incidence in behavior management problems in the dental office.

Guidance:

- Schedule appointments in the morning or at a time of day when child is least fatigued, most attentive, and best able to remain seated in dental chair.
- Give short, clear instructions directly to child. Give only one instruction at a time.
- Use Tell-Show-Do approach when introducing new procedures.
- Tell child what is expected of him/her during the visit.
- Consider small rewards for appropriate behavior (stickers, etc). Positive reinforcement may be helpful in obtaining compliance.
- Discuss appropriate behavioral interventions with parent. Determine if breaks are necessary during treatment.
- Consider use of nitrous oxide during treatment to manage behavior.

Patients suffering from ADHD are often tactile and taste sensitive. Keep this in mind when recommending a toothbrush and tooth paste.

Stress the benefits of good dietary habits since this will reduce caries risk and help stabilize blood sugar levels.

In our practice, we found it helped with patient behaviour if we put their feet in a foot spa with warm water on a cold day (and cold water on a hot day) or get the masseuse/assistant to do a foot massage during treatment.

Medication

ADHD can be well controlled with medication. Commonly used medications include:

1. Methylphenidate (trade name: Ritalin, Concerta, Methylin, Metadate)

They are Central nervous system (CNS) stimulants. These are medicines that speed up physical and mental processes and are used to treat conditions characterized by lack of adrenergic stimulation. Methylphenidate (Ritalin) and dextroamphetamine sulphate (Dexedrine) are used for their paradoxical effect in attention—deficit hyperactivity disorder (ADHD).

Side effects:

Nervousness and insomnia are the most common adverse reactions but are usually controlled by reducing dosage and omitting the drug in the afternoon or evening. Other reactions include hypersensitivity (including skin rash, urticaria, fever, arthralgia (joint pain), exfoliative dermatitis, erythema multiformea (type of hypersensitivity reaction) with histopathological findings of necrotizing vasculitis(inflammation of blood vessels), and thrombocytopenic purpura (red/purplish lesions on the skin); anorexia; nausea; dizziness; palpitations; headache; dyskinesia; drowsiness; blood pressure and pulse changes, both up and down; tachycardia; angina; cardiac arrhythmia Vasoconstrictors should therefore be used with caution – in low doses with careful aspiration; abdominal pain; weight loss during prolonged therapy. There have been rare reports of Tourette's syndrome. Toxic psychosis has been reported. Although a definite causal relationship has not been established, the following have been reported in patients taking this drug: instances of abnormal liver function, ranging from transaminase elevation to hepatic coma; isolated cases of cerebral arthritis and/or occlusion; leukopenia and/or anemia(reduced red/white blood cell counts); transient depressed mood; aggressive behavior; a few instances of scalp hair loss. Very rare reports of neuroleptic malignant

syndrome (NMS) have been received, and, in most of these, patients were concurrently receiving therapies associated with NMS. In a single report, a ten-year-old boy who had been taking methylphenidate for approximately 18 months experienced an NMS-like event within 45 minutes of ingesting his first dose of venlafaxine. It is uncertain whether this case represented a drug-drug interaction, a response to either drug alone, or some other cause.

In children, loss of appetite, abdominal pain, weight loss during prolonged therapy, insomnia, and tachycardia may occur more frequently; however, any of the other adverse reactions listed above may also occur.

2. Amphetamine and Dextroamphetamine

   Trade names are Adderall, Dexedrine, Dextroamphetamine and are commonly used for patients suffering from narcolepsy.

   Increased pulse rate and blood pressure has been reported. Vasoconstrictors should be used with the same care as mentioned above. Weight loss may occur.

Dental Treatment and Prevention

- Monitor caries development, bruxism, and dental/oral trauma carefully.

Look for signs of physical abuse during the examination. Note findings in chart and report any suspected abuse to Child Protective Services, as required by law. Abuse is more common in children with developmental disabilities and often manifests in oral trauma.

A**dditional information:**
http://www.thecenterforpediatricdentistry.com/intranet/special_needs_fact_sheets/dental_providers/ADHD-Dental.pdf

References

- Bimstein, E., Wilson, J., Guelmann, M., Primosch, R. (2008) Oral characteristics of children with attention-deficit hyperactivity disorder. *Special Care Dentistry,* 28(3): 107-110
- Blomqvist, M., Holmberg, K., Fernell, E., Ek, U., Dahllof, G. (2006) Oral health, dental anxiety, and behavior management problems in children with attention deficit hyperactivity disorder. *European Journal of Oral Sciences,* 114(5): 385-390.
- Clinical practice guideline: diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder. American Academy of Pediatrics. Pediatrics 2000; 105:1158-1170.

Question time

1. Tooth enamel is composed of carbonated hydroxy apatite.

2. Saliva aids in the demineralisation of enamel.
3. Dental decay can be passed from one person to another.
4. CAMBRA suggests that a patient's risk for tooth decay should be assessed, rather than to just fill decayed teeth.
5. The presence of *Streptococcus mutans* in saliva places a patient in a High Risk category.
6. Bacteria use protein to produce acids, leading to enamel breakdown.
7. Glass ionomer sealants cannot be applied in very moist conditions or in places where isolation is difficult.
8. Preparing a fissure for fissure sealant with a pumice prophylaxis, rinsing, drying, and acid etching with 37% phosphoric acid for 30 seconds to 40 seconds ensures the absence of micro-leakage.
9. A study by Koh et al concluded that fissure sealant does not bond to fluoride treated enamel.
10. BPA is a xeno-estrogen that mimics estrogen in our bodies.
11. The ADA concluded that there is no risk of BPA leakage from dental materials.
12. It is recommended that the sealant should be rinsed or wiped with moist cotton wool after curing, to reduce the risk of exposure to unpolymerized monomers.
13. Patients suffering from ADHD have problems performing quiet tasks or activities
14. Patients on Ritalin should not be considered for the use of nitrous oxide during treatment to manage behavior.
15. Vaso constrictors should be used with extra care and consideration for patients that are on treatment for ADHD