



**Steven A. Nerad, D.M.D., PC**  
**Dentistry For Children & Teens**  
**Orthodontics For All Ages**  
1024 Serpentine Lane, Suite 107  
Pleasanton, CA 94566-4716  
(925) 846-3336 Fax (925) 846-0116

We are so pleased to welcome you to our practice! Thank you for choosing us to provide dental care to your children. We will do our best to provide you with the highest quality treatment in a caring, fun and comfortable way. All of us are available to help you with your needs and concerns.

Dr. Nerad is a specialist in children's dentistry and orthodontics. Our staff is highly trained and experienced having nearly 100 years jointly in dentistry. We provide children's dental care for toddlers through adolescence and young adulthood. Additionally, we provide orthodontic care for children as well as adults.

Many of our older patients visiting for the first time have been to a dentist and are familiar with a dental visit. Even so, many "old timers" find their visit to be particularly fun when they find we have a video games. For those children who have never been to a dentist a new positive adventure awaits. You can help make this first time visit a breeze, especially if your child is young, by reinforcing our role as a "tooth doctor", a friendly sort who works to keep teeth healthy. Approach the visit with a calm upbeat manner and your child will sense the same. Most of our existing patients enjoy coming and eagerly look forward to their six month checkups. We hope your children will find it a fun visit and look forward to their future visits too!

We've enclosed health and patient information forms. To best serve you we ask that you please complete these forms fully before your visit. **Kindly bring these forms along with a complete insurance form and, if available, your insurance ID card to your visit.** We'll be happy to submit your insurance forms on your behalf.

We also want to remind you that dental insurance is not designed to cover all dental costs. Most insurance policies have deductibles, co-payments, yearly maximums and exclusions. Balances not covered by the insurance are the patient's responsibility, but our staff will make every effort to maximize your insurance benefits and minimize your costs. At the conclusion of your visit, we ask that you pay your portion not covered by insurance.

Again let us welcome you to our practice. We look forward to seeing you soon!

Very truly yours,

Dr. Nerad, Debbie, Robin, Rebecca & Marla

Steven A. Nerad, D.M.D.  
Parent and Insurance  
Information



Patient Information				
Date _____				
Patient Name _____	Last	First	Middle	
Address _____	Street	City	State	zip
Home # ( ) _____	Cell # ( ) _____	B/D _____	SS # _____	- -
Parent or Guardian's Name _____				
Whom may we thank for referring you to our office: _____				
Responsible Party: _____	Signature _____			

Father's Information				
Name _____	Last	First	Middle	Marital Status
Residence _____	Street	City	State	Zip
Mailing Address _____	Street	City	State	Zip
How long at this address? _____	Rent/Own _____	E-mail Address _____		
Home Phone # ( ) _____	Work # ( ) _____	Cell # ( ) _____		
Previous Address (if less than 3 yrs.) _____	Street	City	State	Zip
SS # _____	B/D _____	Relationship to Patient _____		
Employer _____	Occupation _____			
Business Address _____	Street	City	State	Zip
Dental Ins. Co. _____	Group/Plan # _____	Effective Date _____		
Mail Ins claims to _____	Street	City	State	Zip ( ) Phone
Bank _____	/ Savings	Branch	/ Checking	Branch
			Credit Card-None-MC-Visa-Discover circle one	

Mother's Information				
Name _____	Last	First	Middle	Marital Status
Residence _____	Street	City	State	Zip
Mailing Address _____	Street	City	State	Zip
How long at this address? _____	Rent/Own _____	E-mail Address _____		
Home Phone # ( ) _____	Work # ( ) _____	Cell # ( ) _____		
Previous Address (if less than 3 yrs.) _____	Street	City	State	Zip
SS # _____	B/D _____	Relationship to Patient _____		
Employer _____	Occupation _____			
Business Address _____	Street	City	State	Zip
Dental Ins. Co. _____	Group/Plan # _____	Effective Date _____		
Mail Ins claims to _____	Street	City	State	Zip ( ) Phone
Bank _____	/ Savings	Branch	/ Checking	Branch
			Credit Card-None-MC-Visa-Discover circle one	

Emergency Contact	
Name of nearest relative not living with you _____	
Complete Address _____	
Home Phone # ( ) _____	Cell Phone # ( ) _____

**Steven A. Nerad, D.M.D. PC, Dentistry for Children & Young Adults and Orthodontics for All Ages**

Please tell us about your child

Today's Date \_\_\_\_\_ Patient 's Name \_\_\_\_\_ Prefers to be called \_\_\_\_\_

Birth date \_\_\_\_\_ Age \_\_\_\_\_ Male \_\_\_\_\_ Female \_\_\_\_\_ Adopted yes  no  School \_\_\_\_\_ Grade \_\_\_\_\_

Child's interests, hobbies, sports, favorite toy \_\_\_\_\_

Other siblings and ages \_\_\_\_\_

Who can we thank for referring you? \_\_\_\_\_ Major reason for seeking care today \_\_\_\_\_

Mother's Name \_\_\_\_\_

Father's Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

City, State, Zip \_\_\_\_\_

\_\_\_\_\_

Phone, Home \_\_\_\_\_ Work \_\_\_\_\_

Home \_\_\_\_\_ Work \_\_\_\_\_

Cell \_\_\_\_\_ E-Mail \_\_\_\_\_

Cell \_\_\_\_\_ E-Mail \_\_\_\_\_

Occupation \_\_\_\_\_

Occupation \_\_\_\_\_

Marital Status: Mar.  Single  Div.  Sep.  Wid.  If divorced, who is the primary custodial parent? \_\_\_\_\_

**MEDICAL HISTORY** Please circle the appropriate reply

Physician's Name \_\_\_\_\_ Phone \_\_\_\_\_ City \_\_\_\_\_

- 1 Does your child have a health problem?.....Yes No
- 2 Was your child ever a patient in a hospital?..... Yes No
- 3 Date of last physical exam: \_\_\_\_\_
- 4 Is your child under medical care for illness now or in the past two years?.....Yes No  
If so, why? \_\_\_\_\_
- 5 Is your child taking medication now?.....Yes No  
If so, what & why? \_\_\_\_\_
- 6 Has your child ever had a serious illness or operation ...Yes No  
If so, explain \_\_\_\_\_
- 7 Does your child have or ever had any of the following?
  - a Rheumatic fever, rheumatic heart disease ..... Yes No
  - b Congenital heart disease.....Yes No
  - c Cardiovascular disease (heart trouble, heart attack, coronary insufficiency, coronary occlusion, high blood pressure, arteriosclerosis, stroke).....Yes No
  - d Heart Murmur ? Functional , Diseased ... Yes No
  - e Allergy? Food , Medicine , Other , ... .Yes No  
If so, explain \_\_\_\_\_
  - f Asthma , Hay fever .....Yes No
  - g Hives or skin rash.....Yes No
  - h Fainting spells or seizures.....Yes No
  - i Hepatitis, jaundice, or liver disease..... Yes No
  - j Diabetes .....Yes No
  - k Inflammatory rheumatism (painful swollen joints)... Yes No
  - l Arthritis.....Yes No
  - m Stomach ulcers.....Yes No
  - n Kidney trouble .....Yes No
  - o Tuberculosis.....Yes No
  - p Persistent cough or cough up blood..... Yes No
  - q Venereal disease .....Yes No
  - r Epilepsy or seizures.....Yes No
  - s Sickle cell disease or trait .....Yes No

- t Thyroid disease .....Yes No
- u Immune deficiency disease.....Yes No
- v Emphysema.....Yes No
- w Psychiatric treatment .....Yes No
- x Cleft lip or palate .....Yes No
- y Cerebral palsy.....Yes No
- z Mental retardation.....Yes No
- aa Hearing disability .....Yes No
- bb Developmental disability .....Yes No  
if so, explain \_\_\_\_\_
- cc Was your child premature.....Yes No  
If yes how many weeks \_\_\_\_\_
- dd Frequent tonsillitis.....Yes No
- ee Endocrine or hormone problems.....Yes No
- ff Bone disease .....Yes No
- gg Cancer or tumors . .....Yes No
- hh Congenital disorders.....Yes No
- ii ADD (Attention Deficit Disorder) .....Yes No
- jj Herpes .....Yes No
- ll Other illnesses.....Yes No  
If yes, what? \_\_\_\_\_

PLEASE COMPLETE NEXT PAGE

- 8 Does your child urinate (pass water)?  
more than six times a day? .....Yes No
- 9 Is your child thirsty much of the time?..... Yes No
- 10 Has your child had abnormal bleeding associated with  
previous surgery, extractions, or accidents? . .....Yes No
- 11 Does he/she bruise easily?.....Yes No

- 12 Has he/she required a blood transfusion? .....Yes No
- 13 Does he/she have any blood disorders such as anemia?.....Yes No
- 14 Has he/she ever had surgery, radiation treatment, or chemotherapy for tumors or cancer?.....Yes No  
If so, explain\_\_\_\_\_
- 15 Does your child have a disability that prevents treatment in a dental office?.....Yes No
- 16 Is he/she taking any of the following?
  - a Antibiotics or sulfa drugs..... Yes No
  - b Anticoagulants (blood thinners).....Yes No
  - c Medicine for high blood pressure .....Yes No
  - d Cortisone or steroids.....Yes No
  - e Tranquilizers.....Yes No
  - f Aspirin .....Yes No
  - g Dilantin or other anticonvulsants .....Yes No
  - h Insulin, tolbutamide, Orinase, or similar drug.....Yes No
  - i Psychiatric medicines .....Yes No
  - j Prescription diet medicines .....Yes No
  - k Any other?.....Yes No  
If yes, what?\_\_\_\_\_
- 17 Is he/she allergic to, or reacted adversely to, any of the following?
  - a Local anesthetics..... Yes No
  - b Penicillin or other antibiotics.....Yes No
  - c Sulfa drugs.....Yes No
  - d Barbiturates, sedatives, or sleeping pills.....Yes No
  - e Phenergan.....Yes No
  - f Aspirin .....Yes No
  - g General anesthesia.....Yes No
  - h Any other?.....Yes No  
If yes what?\_\_\_\_\_
- 18 Has he/she ever taken Fen-phen?.....Yes No

**ADOLESCENT WOMEN:**

- 19 Are you pregnant now or think you may be ?.....Yes No
- 20 Do you anticipate becoming pregnant?.....Yes No
- 21 Are you taking birth control pills.....Yes No

**DENTAL HISTORY**

- 1 Is this your child's first dental visit.....Yes No  
if no, date of last cleaning\_\_\_\_\_
- date of last X-rays\_\_\_\_\_ type\_\_\_\_\_
- Prior dentist's name \_\_\_\_\_
- City/ State \_\_\_\_\_
- phone\_\_\_\_\_
- 2 Has he/she experienced any unfavorable reactions from prior dental or medical care?.....Yes No
- 3 Describe your child' behavior at medical visits.\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CONTINUED NEXT COLUMN

- 4 How do you anticipate your child will react to today's visit?\_\_\_\_\_
- 5 Has he/she sucked a thumb/ finger/ pacifier after the age of 3 years .....Yes No
- 6 Have there been injuries to the face, mouth, or gums.....Yes No
- 7 Does your child have
  - a a toothache.....Yes No  
If so, where?\_\_\_\_\_
  - b missing  or extra teeth  .....Yes No
  - c sores  or swellings  in the mouth or jaws .....Yes No
  - d painful , clicking , or difficult jaw movements ?.....Yes No
  - e bleeding gums or advised about a gum problem...Yes No
  - f speech problems .....Yes No
- 8 Does your child grind his/her teeth? .....Yes No
- 9 Does your child breathe through his/her mouth
  - a while asleep?.....Yes No
  - b while awake?.....Yes No
- 10 Are you concerned about the
  - a appearance of your child's teeth?.....Yes No
  - b health of his/her gums? .....Yes No
  - c fit of the teeth?.....Yes No
  - d inability to chew well? .....Yes No
- 11 Have you , spouse , or your other children 
  - a had braces? .....Yes No
  - b or need braces?.....Yes No  
If so, who\_\_\_\_\_
- 12 Do other family members need braces? .....Yes No  
If so, who?\_\_\_\_\_
- 13 Have you been satisfied with your child's prior dental care? .....Yes No  
If no, explain\_\_\_\_\_

14 What else would you like to tell us?\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*Thank-you f or telling us about your child and selecting us for your dental care!*

**PLEASE CONTINUE ON NEXT PAGE**

Child's name \_\_\_\_\_

**YOUR PERMISSION TO CARE FOR YOUR CHILD, INSURANCE RELEASE, & FINANCIAL AGREEMENT**

I certify that the above information is complete and accurate. If changes occur I will promptly notify Dr. Nerad or staff.

I authorize Dr. Nerad and staff to perform diagnostic procedures, pediatric behavioral management, and treatment as may be necessary for proper dental care. I am aware that the practice of dentistry is not an exact science and acknowledge that no guarantees have been made to me concerning the results of treatment.

I authorize release of any information concerning my child's health care, advice, and treatment to another dentist.

I authorize release of any information concerning my child's health care, advice, and treatment provided for the purpose of evaluating and administering claims for insurance benefits.

I hereby authorize payment of insurance benefits directly to Dr. Nerad otherwise payable to me. I understand that Dr. Nerad is not contracted or a participating dentist with any insurance company except Delta Dental Plans. Some insurance companies will directly pay the subscriber and the subscriber is responsible for paying the balance.

I understand the office will provide an estimate for treatment and estimated insurance benefits upon request. I understand that my dental care insurance carrier or payer of my dental benefits may pay less than the actual bill for services. I understand I am financially responsible for payment in full of all accounts. By signing this I revoke all previous agreements to the contrary and agree to be responsible for payment of services not paid in whole or in part by my dental or medical payer.

I understand that appointments are especially reserved for my child and agree to pay for broken appointments or appointments that are not canceled with at least 24 hours advanced notice.

I understand that payment is due at the time of service and agree to pay a monthly finance charge of 1 1/2 % with a minimum \$2.50, on balances outstanding 30 days or more.

I know I have a right to receive a copy of this authorization upon request and agree that a photocopy of this authorization is as valid as the original.

I have received a copy of the May 2004 Dental Materials Fact Sheet.

Parent or guardian's signature: \_\_\_\_\_

Printed name: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Relationship to the patient: \_\_\_\_\_

**OFFICE USE ONLY**

Medical History Review

Doctor's Signature: \_\_\_\_\_ M2 Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Well , 0 Meds , NKA  Comments

**Steven A. Nerad, D.M.D., PC, Dentistry for Children & Young Adults and Orthodontics for All Ages**

**Pediatric Dentistry Informed Consent for Patient Management Techniques**

**Patient's Name (please print)** \_\_\_\_\_

*Please read carefully and ask about anything on this form. We will be happy to explain it further.*

It's our intent to provide the best quality dental care available for your child in a timely, affordable, and caring manner. Providing high quality dental care to children can be difficult due to the child's behavior.

Although most of our patients eagerly look forward to their visits, some children are anxious, frightened, or stressed. It is quite understandable for these children to cry or be uncooperative in response to a situation that can be stressful or at times uncomfortable. Every effort will be made to obtain your child's cooperation through warmth, charm, and understanding. When these are not enough, there are several behavioral management techniques used to minimize or eliminate disruptive behavior. These techniques listed below are all routinely used by pediatric dentists throughout the country.

1. *Tell - show - do:* The dentist or assistant explains to the child what is to be done by demonstrating on a model or on the child's finger. Then the procedure is done on the patient's tooth. Praise is used to reinforce cooperative behavior.
2. *Modeling:* Dental care is done in an open bay providing timid or apprehensive children to observe cooperative behavior of other children. Often an older sibling is a good model for the first time youngster.
3. *Positive Reinforcement:* This technique rewards the child who displays any desirable behavior. Rewards include compliments, praise, a pat on the arm, or a prize.
4. *Voice control:* Changing the tone or the volume of the practitioner's voice can gain the attention of a disruptive child.
5. *Tooth props:* A dental instrument is gently placed in the child's mouth to prevent either intentional or unintentional closure on the dentist's fingers, drill, or sharp dental instruments.
6. *Physical Safety restraint by the dentist or assistant:* The child is held so they cannot grab a moving drill or instrument. It is extremely important they do not bump or grab the doctor's hand or move about while delicate work is performed. This is for the safety of the child and to facilitate treatment.
7. *Laughing gas:* Nitrous oxide (laughing gas) is administered to calm and soothe the patient prior to a stressful procedure. Nitrous oxide is a safe medication. Very rarely nausea may occur. The patient is **always** awake and never loses consciousness.
8. *Stabilizing Wrap:* This is a cloth device to stabilize the patient's position and to limit the patient's movements that otherwise could be injurious during treatment.
9. *Hand placed on mouth:* Rarely despite our best efforts a child will have a tantrum. The tantrum prevents the patient from hearing the dentist's and assistant's instructions and reassurances. The dentist may gently place his hand over the patient's mouth to gain the patient's attention and stop the tantrum. Once the tantrum stops and the patient begins to listen, the dentist's hand is removed.
10. *Sedative medications:* A variety of medications are available to relieve anxiety and produce varying levels of awareness. Sedative medications will never be used without further discussion and parental permission.
11. *Parents in Treatment Room:* Many pediatric dental offices do not allow parents in the treatment area; however, here parents are welcome in the treatment room for most procedures. The size of the treatment room only permits one parent in the treatment area at a time. We ask the parent to sit quietly off to the side observing, so the doctor and child may communicate. Often an uncooperative child will act out when a parent is in the treatment room and cooperate better without the parent in the treatment area. If the child is uncooperative or if the procedure is unduly stressful to the parent, the parent will be asked to remain in the reception area.
12. *Crying child:* In spite of all our efforts occasionally a child especially if frightened, anxious, young and/ or immature may cry during his or her visit. We realize this is often more stressful to the parent than the child. Please be assured that care is being done in a comfortable, compassionate manner and no physical or mental harm has occurred while providing the necessary treatment. With time, patience, TLC and maturation we look forward to celebrating the day a crying child eagerly anticipates his/her next visit

The listed pediatric dental behavior management techniques have been explained to me. I understand their use, and the risks, benefits, and alternatives available. I have had all my questions answered and I realize I can always seek further information or revoke permission for any of these techniques.

Parent's or guardian's signature: \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

Printed name: \_\_\_\_\_ Relationship to patient: \_\_\_\_\_

Staff witness: \_\_\_\_\_



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#### **Notice of Privacy Practices**

At the office of Steven A. Nerad, D.M.D. PC, we have always kept your child's health information secure and confidential. A new law requires us to continue maintaining your child's privacy, to give you this notice and to follow the terms of this notice. This notice describes how your child's health information may be used and disclosed and how you can access this information. Please review it carefully.

The law requires us to use or disclose your child's health information to those involved in his/her treatment. For example, a review of your file by a specialist doctor whom we may involve in their care.

We may use or disclose your child's health information for payment of services. For example, we may send a report of your child's progress to your insurance company.

We may use or disclose your child's health information for our normal health care operations. For example, one of our staff will enter you and your child's information into our computer.

We may share your child's medical information with our business associates, such as a billing service. We have a written contract with each business associate that requires them to protect your privacy.

We may use your child's information to contact you. For example, we may send newsletters or other information. We may also want to call and remind you about your child's appointments. If you are not at home we may leave this information on your answering machine or with the person who answers the telephone.

In an emergency, we may disclose your child's health information to a family member or another person responsible for your child's care. Following routine visits we may discuss treatment with the adult accompanying your child, unless you specifically request in writing otherwise.

We may release some or all of your child's health information when required by law.

To provide continuity of your child's care, your child's information will become the property of the new owner if this practice is sold.

Except as described above, this practice will not use or disclose your child's health information as described above without your written authorization.

You may request in writing that we not use or disclose your child's health information as described above. We will let you know if we can fulfill your request.

You have the right to know of any uses or disclosures we make with your child's health information beyond the above uses.

As we will need to contact you and your child from time to time, we will use whatever address or telephone number you prefer.

You have the right to transfer copies of your child's health information to another practice. We will mail your child's file copy for you.

You have the right to see and receive a copy of your child's health information, with few exceptions. Give us a written request regarding the information you want to see. If you want a copy of your child's records, we may charge you a reasonable fee for copies.

You have the right to request an amendment or change to your child's health information. Give us your request to make changes in writing. If you wish to include a statement in your child's file, please give it to us in writing. We may or may not make the changes you request, but we will be happy to include your statement in your child's file. If we agree to an amendment or change, we will not remove nor alter earlier documents, but will add new information.

You have a right to receive a copy of this notice. We may change any of the details of this notice, but these practices will remain in effect until further notice.

You may file a complaint with the Department of Health and Human Services, 200 Independence Avenue, S. W., Room 509F, Washington, D.C., 20201. You will not be retaliated against for filing a complaint. However, before filing a complaint, or for further information or assistance regarding your child's health information privacy, please contact our privacy officer, Dr. Nerad at 925/846-3336.

This notice goes into effect April 14, 2003. You may refuse to sign this acknowledgement.

**Acknowledgement.** *I have received a copy of the Steven A. Nerad, D.M.D., PC's Notice Of Privacy Practices.*

Signed \_\_\_\_\_ Printed Name \_\_\_\_\_ Date \_\_\_\_\_

If signing as a parent or guardian, please list the name(s) of the child patient(s) \_\_\_\_\_

The following document is the Dental Board of California's Dental Materials Fact Sheet. The Department of Consumer Affairs has no position with respect to the language of this Dental Material Fact Sheet; and its linkage to the DCA website does not constitute an endorsement of the content of this document.

## The Dental Board of California Dental Materials Fact Sheet

Adopted by the Board on October 17, 2001

As required by Chapter 801, Statutes of 1992, the Dental Board of California has prepared this fact sheet to summarize information on the most frequently used restorative dental materials. Information on this fact sheet is intended to encourage discussion between the patient and dentist regarding the selection of dental materials best suited for the patient's dental needs. It is not intended to be a complete guide to dental materials science.

The most frequently used materials in restorative dentistry are amalgam, composite resin, glass ionomer cement, resin-ionomer cement, porcelain (ceramic), porcelain (fused-to-metal), gold alloys (noble) and nickel or cobalt-chrome (base-metal) alloys. Each material has its own advantages and disadvantages, benefits and risks. These and other relevant factors are compared in the attached matrix titled "Comparisons of Restorative Dental Materials." A Glossary of Terms<sup>1</sup> is also attached to assist the reader in understanding the terms used.

The statements made are supported by relevant, credible dental research published mainly between 1993 - 2001. In some cases, where contemporary research is sparse, we have indicated our best perceptions based upon information that predates 1993.

The reader should be aware that the outcome of dental treatment or durability of a restoration is not solely a function of the material from which the restoration was made.

The durability of any restoration is influenced by the dentist's technique when placing the restoration, the ancillary materials used in the procedure, and the patient's cooperation during the procedure. Following restoration of the teeth, the longevity of the restoration will be strongly influenced by the patient's compliance with dental hygiene and home care, their diet and chewing habits.

Both the public and the dental profession are concerned about the safety of dental treatment and any potential health risks that might be associated with the materials used to restore the teeth. All materials commonly used (and listed in this fact sheet) have been shown -- through laboratory and clinical research, as well as through extensive clinical use -- to be safe and effective for the general population. The presence of these materials in the teeth does not cause adverse health problems for the majority of the population. There exist a diversity of various scientific opinions regarding the safety of mercury dental amalgams. The research literature in peer-reviewed scientific journals suggests that otherwise healthy women, children and diabetics are not at increased risk for exposure to mercury from dental amalgams. Although there are various opinions with regard to mercury risk in pregnancy, diabetes, and children, these opinions are not scientifically conclusive and therefore the dentist may want to discuss these opinions with their patients. There is no research evidence that suggests pregnant women, diabetics and children are at increased health risk from dental amalgam fillings in their mouth. A recent study reported in the JADA factors in a reduced tolerance (1/50<sup>th</sup> of the WHO safe limit) for exposure in calculating the amount of mercury that might be taken in from dental fillings. This level falls below the established safe limits for exposure to a low concentration of mercury or any other released component from a dental restorative material. Thus, while these sub-populations may be perceived to be at increased health risk from exposure to dental restorative

materials, the scientific evidence does not support that claim. However, there are individuals who may be susceptible to sensitivity, allergic or adverse reactions to selected materials. As with all dental materials, the risks and benefits should be discussed with the patient, especially with those in susceptible populations.

There are differences between dental materials and the individual elements or components that compose these materials. For example, dental amalgam filling material is composed mainly of mercury (43-54%) and varying percentages of silver, tin, and copper (46-57%). It should be noted that elemental mercury is listed on the Proposition 65 list of known toxins and carcinogens. Like all materials in our environment, each of these elements by themselves is toxic at some level of concentration if they are taken into the body. When they are mixed together, they react chemically to form a crystalline metal alloy. Small amounts of free mercury may be released from amalgam fillings over time and can be detected in bodily fluids and expired air. The important question is whether any free mercury is present in sufficient levels to pose a health risk. Toxicity of any substance is related to dose, and doses of mercury or any other element that may be released from dental amalgam fillings falls far below the established safe levels as stated in the 1999 US Health and Human Service Toxicological Profile for Mercury Update.

All dental restorative materials (as well as all materials that we come in contact with in our daily life) have the potential to elicit allergic reactions in hypersensitive individuals.<sup>1</sup> These must be assessed on a case-by-case basis, and susceptible individuals should avoid contact with allergenic materials. Documented reports of allergic reactions to dental amalgam exist (usually manifested by transient skin rashes in individuals who have come into contact with the material), but they are atypical. Documented reports of toxicity to dental amalgam exist, but they are rare. There have been anecdotal reports of toxicity to dental amalgam and as with all dental material risks and benefits of dental amalgam should be discussed with the patient, especially with those in susceptible populations.

Composite resins are the preferred alternative to amalgam in many cases. They have a long history of biocompatibility and safety. Composite resins are composed of a variety of complex inorganic and organic compounds, any of which might provoke allergic response in susceptible individuals. Reports of such sensitivity are atypical. However, there are individuals who may be susceptible to sensitivity, allergic or adverse reactions to composite resin restorations. The risks and benefits of all dental materials should be discussed with the patient, especially with those in susceptible populations.

Other dental materials that have elicited significant concern among dentists are nickel-chromium-beryllium alloys used predominantly for crowns and bridges. Approximately 10% of the female population are alleged to be allergic to nickel.<sup>2</sup> The incidence of allergic response to dental restorations made from nickel alloys is surprisingly rare. However, when a patient has a positive history of confirmed nickel allergy, or when such hypersensitivity to dental restorations is suspected, alternative metal alloys may be used. Discussion with the patient of the risks and benefits of these materials is indicated.

<sup>1</sup> Dental Amalgam: A scientific review and recommended public health service strategy for research, education and regulation, Dept. of Health and Human Services, Public Health Service, January 1993.

<sup>2</sup> Merck Index 1983, Tenth Edition, M Narsha Windhol z, (ed).



## Comparisons of Direct Restorative Dental Materials

TYPES OF DIRECT RESTORATIVE DENTAL MATERIALS				
COMPARATIVE FACTORS	AMALGAM	COMPOSITE RESIN (DIRECT AND INDIRECT RESTORATIONS)	GLASS IONOMER CEMENT	RESIN-IONOMER CEMENT
General Description	Self-hardening mixture in varying percentages of a liquid mercury and silver-tin alloy powder.	Mixture of powdered glass and plastic resin; self-hardening or hardened by exposure to blue light	Self-hardening mixture of glass and organic acid.	Mixture of glass and resin polymer and organic acid; self hardening by exposure to blue light.
Principle Uses	Fillings; sometimes for replacing portions of broken teeth.	Fillings, inlays, veneers, partial and complete crowns; sometimes for replacing portions of broken teeth.	Small fillings; cementing metal & porcelain/metal crowns, liners, temporary restorations.	Small fillings; cementing metal & porcelain/metal crowns, and liners.
Resistance to Further Decay	High; self-sealing characteristic helps resist recurrent decay; but recurrent decay around amalgam is difficult to detect in its early stages.	Moderate; recurrent decay is easily detected in early stages.	Low-Moderate; some resistance to decay may be imparted through fluoride release.	Low-Moderate; some resistance to decay may be imparted through fluoride release.
Estimated Durability (permanent teeth)	Durable	Strong, durable.	Non-stress bearing crown cement.	Non-stress bearing crown cement.
Relative Amount of Tooth Preserved	Fair; Requires removal of healthy tooth to be mechanically retained; No adhesive bond of amalgam to the tooth.	Excellent; bonds adhesively to healthy enamel and dentin.	Excellent; bonds adhesively to healthy enamel and dentin	Excellent; bonds adhesively to healthy enamel and dentin.
Resistance to Surface Wear	Low Similar to dental enamel; brittle metal.	May wear slightly faster than dental enamel.	Poor in stress-bearing applications. Fair in non-stress bearing applications.	Poor in stress-bearing applications; Good in non-stress bearing applications.
Resistance to Fracture	Amalgam may fracture under stress; tooth around filling may fracture before the amalgam does.	Good resistance to fracture.	Brittle; low resistance to fracture but not recommended for stress-bearing restorations.	Tougher than glass ionomer; recommended for stress-bearing restorations in adults.
Resistance to Leakage	Good; self-sealing by surface corrosion; margins may chip over time.	Good if bonded to enamel; may show leakage over time when bonded to dentin; Does not corrode.	Moderate; tends to crack over time.	Good; adhesively bonds to resin, enamel, dentine/ post-insertion expansion may help seal the margins.
Resistance to Occlusal Stress	High; but lack of adhesion may weaken the remaining tooth.	Good to Excellent depending upon product used.	Poor; not recommended for stress-bearing restorations.	Moderate; not recommended to restore biting surfaces of adults; suitable for short-term primary teeth restorations.
Toxicity	Generally safe; occasional allergic reactions to metal components. However amalgams contain mercury. Mercury in its elemental form is toxic and as such is listed on prop 65.	Concerns about trace chemical release are not supported by research studies. Safe; no known toxicity documented. Contains some compounds listed on prop 65.	No known incompatibilities. Safe; no known toxicity documented.	No known incompatibilities. Safe; no known toxicity documented.
Allergic or Adverse Reactions	Rare; recommend that dentist evaluate patient to rule out metal allergies.	No documentation for allergic reactions was found.	No documentation for allergic reactions was found. Progressive roughening of the surface may predispose to plaque accumulation and periodontal disease.	No known documented allergic reactions; Surface may roughen slightly over time; predisposing to plaque accumulation and periodontal disease if the material contacts the gingival tissue.
Susceptibility to Post-Operative Sensitivity	Minimal; High thermal conductivity may promote temporary sensitivity to hot and cold; Contact with other metals may cause occasional and transient galvanic response.	Moderate; Material is sensitive to dentist's technique; Material shrinks slightly when hardened, and a poor seal may lead to bacterial leakage, recurrent decay and tooth hypersensitivity.	Low; material seals well and does not irritate pulp.	Low; material seals well and does not irritate pulp.

Esthetics (Appearance)	Very poor. Not tooth colored; initially silver-gray, gets darker, becoming black as it corrodes. May stain teeth dark brown or black over time.	Excellent; often indistinguishable From natural tooth.	Good; tooth colored, varies in translucency.	Very good; more translucency than glass ionomer.
Frequency of Repair or Replacement	Low; replacement is usually due to fracture of the filling or the surrounding tooth.	Low-Moderate; durable material hardens rapidly; some composite materials show more rapid wear than amalgam. Replacement is usually due to marginal leakage.	Moderate; Slowly dissolves in mouth; easily dislodged.	Moderate; more resistant to dissolving than glass ionomer, but less than composite resin.
Relative Costs to Patient	Low, relatively inexpensive; actual cost of fillings depends upon their size.	Moderate; higher than amalgam fillings; actual cost of fillings depends upon their size; veneers & crowns cost more.	Moderate; similar to composite resin (not used for veneers and crowns).	Moderate; similar to composite resin (not used for veneers and crowns).
Number of Visits Required	Single visit (polishing may require a second visit)	Single visit for fillings; 2+ visits for indirect inlays, veneers and crowns.	Single visit.	Single visit.