PATIENT INFORMATION

Has any member of your family been a patient of our office? Yes _____ No_____

Date:_____

Patient Name:_____ Patient **Social Security** #:_____

Address:_____

City:_____ State: _____ Zip: _____ Tel:_____

Birthday: _____/_____/_____/ Age:_____ Sex: Male/Female Single/Married/Widowed/Others

Patient/Parent Employed By:_____ Occupation:_____

Business Address:_____

City:_____ State: _____ Zip: _____ Tel:_____

Who is responsible for this account?_____ Relationship to Patient: _____

Who should we contact in an emergency?_____ Phone:_____

DENTAL INSURANCE INFORMATION

Dental Insurance Primary Carrier

Subscriber's Name: Social Security #:

Insurance Company:

Address:

Group Number: ID Number: Birthday:

Subscriber's Employer:

Dental Insurance Secondary Carrier

Subscriber's Name: Social Security #:

Insurance Company:

Address:

Group Number: ID Number: Birthday:

Subscriber's Employer:

What problems would you like to discuss with the doctor and how may we help you?_____

May we thank someone for referring you to our office?_____

CHARGES AND PAYMENTS: Charges will be explained and agreed prior to dental treatment. Payment is payable **at the time of services** are rendered. There is a **charge for broken appointments**. Failure to keep a reservation and/or failure to give the office more than a 24 hour working day notice of cancellation will constitute a broken appointment.

Thank you for your cooperation and for selecting our dental office. We will do our best to make your visits as caring as possible.

MEDICAL HISTORY

1. When were your teeth cleaned last?_____ (month/year)
2. Are you having pain or discomfort at this time? ..... YES NO
3. Do you feel very nervous about having dental treatment? ..... YES NO
4. Have you ever had a bad experience in a dental office? ..... YES NO
5. Have you been a patient in the hospital during the past two years? ..... YES NO
6. Have you been under the care of medical doctor during the past two years for other than routine exams, and if so, why? ..... YES NO
7. Are you taking any medicine or drugs? (if so, name) ..... YES NO
8. Are you allergic to (i.e.., itching, rash, swelling, of hands, feet or eyes) or made sick by penicillin, aspirin, codeine, or any other drugs or medications? , and if so, List? _____ ..... YES NO
9. Have you ever had any excessive bleeding requiring special treatment? ..... YES NO
10. Have you ever had any of the medical conditions listed below? **Please answer each Yes or No.**

YES	NO		YES	NO		YES	NO		YES	NO	
☐	☐	Heart Failure	☐	☐	Stroke	☐	☐	Chemotherapy	☐	☐	AIDS
☐	☐	Heart Disease/Attack	☐	☐	Kidney Trouble	☐	☐	Liver Disease	☐	☐	Hepatitis A (Infectious)
☐	☐	Angina Pectoris	☐	☐	Ulcers	☐	☐	Arthritis	☐	☐	Hepatitis B (Serum)
☐	☐	High Blood Pressure	☐	☐	Emphysema	☐	☐	Rheumatism	☐	☐	HIV+
☐	☐	Heart murmur	☐	☐	Chronic Cough	☐	☐	Cortisone Medicine	☐	☐	Yellow Jaundice
☐	☐	Rheumatic Fever	☐	☐	Tuberculosis (TB)	☐	☐	Glaucoma	☐	☐	Blood Transfusion
☐	☐	Congenital Heart Lesions	☐	☐	Asthma	☐	☐	Pain in Jaw Joints	☐	☐	Drug Addiction
☐	☐	Scarlet Fever	☐	☐	Hay Fever	☐	☐	Epilepsy or Seizures	☐	☐	Hemophilia
☐	☐	Artificial Heart Valve	☐	☐	Sinus Trouble	☐	☐	Fainting or Dizzy Spells	☐	☐	Syphilis
☐	☐	Heart pacemaker	☐	☐	Allergies or Hives	☐	☐	Sickle Cell Disease	☐	☐	Gonorrhea
☐	☐	Heart/Bypass Surgery	☐	☐	Diabetes	☐	☐	Bruise Easily	☐	☐	Cold Sores
☐	☐	Artificial Joint	☐	☐	Thyroid Disease	☐	☐	Periodontal Disease	☐	☐	Genital Herpes
☐	☐	Anemia	☐	☐	X-ray/Cobalt Treatment	☐	☐	Other	☐	☐	Psychiatric Treatment

11. Physician's Name:_____ Telephone:_____
12. When you walk up stairs or take a walk, do you ever have to stop because of pain in your chest, or shortness of breath, or because you are very tired? ..... YES NO
13. Do your ankles swell during the day? ..... YES NO
14. Has your medical doctor ever said you have cancer or a tumor? ..... YES NO
15. Do you have any disease, condition, or problem not listed? ..... YES NO
16. Do you smoke? If so, how much?_____ ..... YES NO
17. WOMEN: Are you pregnant now? ..... YES NO
    Are you taking birth control pills? ..... YES NO

AUTHORIZATION AND RELEASE

The above information is accurate and complete to the best of my knowledge and is only for use in treatment, billing and processing of insurance for benefits for which I am entitled. If I ever have any changes in my health, or if my medicines change, I will inform the Doctor of Dentistry at my next appointment without fail. I authorize the dentist to release any information, including the diagnosis and the records of any treatment or examination rendered to me or my child during the period of such dental care, to third party payers and/or other health practitioners. I authorize my insurance company to pay directly to the dental office the benefits other wise payable to me. I understand that my dental insurance carrier may pay less than the actual bill for services. I agree to be responsible for payment of all services rendered on my behalf or my dependents.

Signature of patient or parent of minor Date Dentist's Signature Date

MEDICAL HISTORY/PHYSICAL EVALUATION UPDATE

Date	Addition	Patient Signature	Dr. Signature

MEDICAL HISTORY

Sierra Dental Group

(Matthew C. Do, D.D.S. And Kyung B. Huh, D.D.S.)

CONSENT FOR USE AND DISCLOSURE OF HEALTH INFORMATION & ACKNOWLEDGEMENT OF RECEIPT OF NOTICE OF PRIVACY PRACTICES AND DENTAL MATERIAL FACT SHEET

SECTION A: TO THE PATIENT - PLEASE READ THE FOLLOWING STATEMENTS CAREFULLY.

Purpose of Consent: By signing this form, you will consent to our use and disclosure of your protected health information to carry out treatment, payment activities, and health care operations.

Notice of Privacy Practices: You have the right to read our Notice of Privacy BEFORE YOU DECIDE WHETHER TO SIGN THIS Consent . Our Notice provides a description of our treatment, payment activities, and healthcare operations, of the uses and disclosures we may make of your protected health information, and of other important matters about your protected health information. A copy of our Notice accompanies this Consent. We encourage you to read it carefully and completely before signing this Consent.

We reserve the right to change our privacy practices as described in our Notice of Privacy Practices. If we change our privacy practices, we will issue a revised Notice of Privacy Practices, which will contain the changes. Those changes may apply to any of your protected health information that we maintain.

You may obtain a copy of our Notice of Privacy Practices, including any revisions of our Notice, at any time by contacting:

Persona en contacto: Matthew C. Do, DDS
Telefono: 209-826-8600
Dirección: 1989 E. Pacheco Blvd., # I, Los Banos, CA 93635

Right to Revoke: You will have the right to revoke this Consent at any time by giving us written notice of your revocation submitted to the Contact Person listed above. Please understand that revocation of this Consent will not affect any action we took in reliance on this Consent before we received your revocation, and that we may decline to treat you or to continue treating you if you revoke this Consent.

SECTION B: ACKNOWLEDGEMENT OF RECEIPT OF NOTICE OF PRIVACY PRACTICES/DENTAL MATERIAL FACT SHEET

I have received a copy of this office's Notice of Privacy Practices and Dental Material Fact Sheet (dated Oct. 2001)

I have had full opportunity to read and consider the contents of this Consent form, your Notice of Privacy Practices and dental material fact sheet. I understand that by signing this Consent from, I am giving my consent to your use and disclosure of my protected health information to carry our treatment, payment activities and health care questions.

Name (Print):_____

Signature:_____ Date_____

If this Consent signed by a personal representative on behalf of the patient complete the following:

Personal Representative's Name:_____

Relationship to Patient:_____

YOUR ARE ENTILED TO A COPY OF THIS CONSENT AFTER YOU SIGN IT.

PATIENT INFORMATION

Has any member of your family been a patient of our office? Yes _____ No_____

Date:_____

Patient Name:_____ Patient **Social Security** #:_____

Address:_____

City:_____ State: _____ Zip: _____ Tel:_____

Birthday: _____/_____/_____/ Age:_____ Sex: Male/Female Single/Married/Widowed/Others

Patient/Parent Employed By:_____ Occupation:_____

Business Address:_____

City:_____ State: _____ Zip: _____ Tel:_____

Who is responsible for this account?_____ Relationship to Patient: _____

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Dental Insurance Primary Carrier

Subscriber's Name: Social Security #:

Insurance Company:

Address:

Group Number: ID Number: Birthday:

Subscriber's Employer:

Dental Insurance Secondary Carrier

Subscriber's Name: Social Security #:

Insurance Company:

Address:

Group Number: ID Number: Birthday:

Subscriber's Employer:

What problems would you like to discuss with the doctor and how may we help you?_____

May we thank someone for referring you to our office?_____

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Thank you for your cooperation and for selecting our dental office. We will do our best to make your visits as caring as possible.

MEDICAL HISTORY

1. When were your teeth cleaned last?_____ (month/year)
2. Are you having pain or discomfort at this time? ..... YES NO
3. Do you feel very nervous about having dental treatment? ..... YES NO
4. Have you ever had a bad experience in a dental office? ..... YES NO
5. Have you been a patient in the hospital during the past two years? ..... YES NO
6. Have you been under the care of medical doctor during the past two years for other than routine exams, and if so, why? ..... YES NO
7. Are you taking any medicine or drugs? (if so, name) ..... YES NO
8. Are you allergic to (i.e.., itching, rash, swelling, of hands, feet or eyes) or made sick by penicillin, aspirin, codeine, or any other drugs or medications? , and if so, List? _____ ..... YES NO
9. Have you ever had any excessive bleeding requiring special treatment? ..... YES NO
10. Have you ever had any of the medical conditions listed below? **Please answer each Yes or No.**

YES	NO		YES	NO		YES	NO		YES	NO	
☐	☐	Heart Failure	☐	☐	Stroke	☐	☐	Chemotherapy	☐	☐	AIDS
☐	☐	Heart Disease/Attack	☐	☐	Kidney Trouble	☐	☐	Liver Disease	☐	☐	Hepatitis A (Infectious)
☐	☐	Angina Pectoris	☐	☐	Ulcers	☐	☐	Arthritis	☐	☐	Hepatitis B (Serum)
☐	☐	High Blood Pressure	☐	☐	Emphysema	☐	☐	Rheumatism	☐	☐	HIV+
☐	☐	Heart murmur	☐	☐	Chronic Cough	☐	☐	Cortisone Medicine	☐	☐	Yellow Jaundice
☐	☐	Rheumatic Fever	☐	☐	Tuberculosis (TB)	☐	☐	Glaucoma	☐	☐	Blood Transfusion
☐	☐	Congenital Heart Lesions	☐	☐	Asthma	☐	☐	Pain in Jaw Joints	☐	☐	Drug Addiction
☐	☐	Scarlet Fever	☐	☐	Hay Fever	☐	☐	Epilepsy or Seizures	☐	☐	Hemophilia
☐	☐	Artificial Heart Valve	☐	☐	Sinus Trouble	☐	☐	Fainting or Dizzy Spells	☐	☐	Syphilis
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13. Do your ankles swell during the day? ..... YES NO
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16. Do you smoke? If so, how much?_____ ..... YES NO
17. WOMEN: Are you pregnant now? ..... YES NO
    Are you taking birth control pills? ..... YES NO

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The above information is accurate and complete to the best of my knowledge and is only for use in treatment, billing and processing of insurance for benefits for which I am entitled. If I ever have any changes in my health, or if my medicines change, I will inform the Doctor of Dentistry at my next appointment without fail. I authorize the dentist to release any information, including the diagnosis and the records of any treatment or examination rendered to me or my child during the period of such dental care, to third party payers and/or other health practitioners. I authorize my insurance company to pay directly to the dental office the benefits other wise payable to me. I understand that my dental insurance carrier may pay less than the actual bill for services. I agree to be responsible for payment of all services rendered on my behalf or my dependents.

Signature of patient or parent of minor Date Dentist's Signature Date

MEDICAL HISTORY/PHYSICAL EVALUATION UPDATE

Date	Addition	Patient Signature	Dr. Signature
_____	_____	_____	_____
_____	_____	_____	_____

MEDICAL HISTORY

Sierra Dental Group

(Matthew C. Do, D.D.S. And Kyung B. Huh, D.D.S.)

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Persona en contacto: Matthew C. Do, DDS
Telefono: 209-826-8600
Dirección: 1989 E. Pacheco Blvd., # I, Los Banos, CA 93635

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Name (Print):_____

Signature:_____ Date_____

If this Consent signed by a personal representative on behalf of the patient complete the following:

Personal Representative's Name:_____

Relationship to Patient:_____

YOUR ARE ENTILED TO A COPY OF THIS CONSENT AFTER YOU SIGN IT.

Sierra Dental Group

INFORMED CONSENT

1. DENTAL EXAMINATION AND TREATMENT PLAN

California Law requires that the dentist examine and diagnose all new patients prior to delegating general supervision duties to auxiliaries including hygienist for cleaning. Init._____

2. CHANGES IN TREATMENT PLAN

I understand that during treatment it may be necessary to change or add procedures because of conditions found while working on the teeth that were not discovered during examination. For example, root canal therapy may follow routine restorative procedures. I give my permission to the Dentist to make any/all changes and additions as necessary, after explaining the reason and obtaining my consent. Init._____

3. DRUGS AND MEDICATIONS:

I understand that antibiotics, analgesics and other medications can cause allergic reactions causing redness and swelling of tissues, pain, itching, vomiting, and/or anaphylactic shock. Init._____

4. PERIODONTAL LOSS (TISSUE & BONE)

I understand that periodontal disease is a condition of the gums and bone and it can lead to eventual tooth loss. Alternative treatment plans have been explained to me, including scaling, root planning, medicinal irrigation, and gum surgery, replacement and /or extraction. I understand that undertaking any dental procedures may not prevent continued bone loss. I understand that I may require constant maintenance. Init._____

5. FILLINGS

I understand that care must be exercised in chewing on new fillings especially during the first 24 hours, to avoid breakage. I understand that a more extensive filling than originally diagnosed may be required due to additional decay. I understand that significant sensitivity is a common after effect of a newly placed filling. Init._____

6. CROWNS, BRIDGES AND CAPS

I understand that sometimes it is not possible to match the color of natural teeth exactly with artificial teeth. I further understand that I may be wearing temporary crowns, which may come off easily and that I must be careful to ensure that they are kept on until the permanent crowns are delivered. I realize the final opportunity to make changes in my new crown, bridge, or cap (including shape, fit, size, and color) will be before cementation. It is also my responsibility to return for permanent cementation within 30 days from tooth preparation. Excessive delays may allow for tooth movement. This may necessitate a remake of the crown, bridge, or cap. I understand there will be additional charges for remakes due to my delaying permanent cementation. Endodontics (root canal) may be necessary after or during crown cementation. Init._____

7. ENDODONTIC TREATMENT (ROOT CANAL)

I realize there is no guarantee that root canal treatment will save my tooth, and that complications can occur from the treatment and that occasionally root canal fills material may extend through the root which does not necessarily effect the success of the treatment. Occasionally additional surgical procedures may be necessary following root canal treatment (Apicoectomy). I understand that the tooth may be lost despite all efforts to save it. In some cases, a previously treated tooth may require re-treatment by a specialist or may require extraction. Following completion of endodontic therapy, a tooth should be restored as soon as possible to protect it from fracture or decay. Init._____

8. REMOVAL OF TEETH

Alternatives to removal have been explained to me (root canal therapy, crown and periodontal surgery, etc). I understand removing teeth does not always remove all the infection, if present, and it may be necessary to have further treatment. I understand the risks involved in having teeth removed, some of which are pain, swelling, spread of infection, dry socket, loss of feeling in my teeth, lips, tongue and surrounding tissue (parasthesia) that can last for an indefinite period of time or fractured jaw. I understand I may need further treatment by a specialist if a complications arise or following treatment, the cost of which is my responsibility. Init._____

9. DENTURES

I understand the wearing of dentures is difficult. Sore sports, altered speech, and difficulty in eating are common problems. Immediate dentures (placement of denture immediately after extractions) may be painful. Immediate dentures may require considerable adjustment and several relines. A permanent reline will be needed later. This is not included in the original denture fee. I understand that it is my responsibility to return for delivery of the dentures. I understand that failure to keep my delivery appointment may result in poorly fitting dentures. If a remake is required due to my delays of more than 30 days, there will be additional charges. Init._____

10. COSMETIC SERVICES

Cosmetic services may not be covered by insurance plans. This includes porcelain facings on molars, cosmetic bleaching, cosmetic bonding and laminates (veneers). Init._____

11. OPTIONAL TREATMENT:

The need for treatment that is excluded as a benefit by insurance has been explained to me. If I choose to proceed, the use and cost of noble metals, including gold, will be with my consent. Init._____

I hereby authorize any of the doctors to proceed with and perform the dental restorations and treatments explained to me. I understand that regardless of any dental insurance coverage I may have, I am responsible for payment of dental fees.

SHOULD ANY DISPUTE ARISE OVER DENTAL SERVICES PROVIDED TO ME, THAT IS WHETHER ANY DENTAL SERVICE RENDERED WAS ALLEGEDLY UNNECESSARY, UNAUTHORIZED OR WAS IMPROPERLY, NEGLIGENTLY, OR INCOMPETENTLY PERFORMED, SAID DISPUTE WILL BE SUBMITTED TO PEER REVIEW BY THE MONTEREY BAY DENTAL SOCIETY, A COMPONENT OF THE AMERICAN DENTAL ASSOCIATION. THE DECISION OF PEER REVIEW SHALL BE BINDING ON BOTH PARTIES. I HAVE READ, UNDERSTOOD, AND AGREED TO THE ABOVE

Signature:_____ Date:_____

SIERRA DENTAL GROUP
1989 E. Pacheco Blvd. Ste#1 Los Banos, CA 93635
Phone (209) 826-8600 Fax (209)826-8668

Patient Financial Policy

Our office strives to provide the highest quality, conservative dental care. Our patients receive prompt attention and excellent service. We believe that a satisfied patient returns for regular care, refers their friend, family and co-workers to the practice and maintains their account in excellent standing. To help maintain a good relationship with our patients, we have adopted this written financial policy. The purpose of this policy is to eliminate confusion or misunderstanding concerning financial arrangements offered by our office and confusion with insurance benefit.

We communicate this policy to each of our patients.

1. For those with insurance benefits, we are happy to bill your insurance as a courtesy to you. Please note that your insurance contract exists solely between you and your insurance carrier. We will file your insurance claim, but we cannot guarantee the benefits. Your insurance plan is a benefit to help offset the cost of necessary dental care. Ultimately, you are responsible for the entire cost of your dental treatment. Any questions or comments regarding your benefits should be directed to your insurance carrier
2. Payment at the time of service is expected including the estimated portion that insurance does not cover. We accept the following payment methods: Cash, Check, MasterCard, Visa, American Express and Discover.
3. Any insurance claim that is 60 days past due becomes responsibility of the patient and is due in full at that time. We will provide you with a copy of the claim to submit to the insurance company with any necessary documentation. Any applicable payment will then be sent directly to you by the insurance company.
4. When the patients' portion cannot be paid in full at the time of service, we are usually able to arrange extended payment arrangements to fit your budget. If you would like to make arrangements for extended payments, we will request a credit report through Care Credit prior to initiating treatment the best option to fit your budget.
5. If your qualify for extended payments, a written, signed agreement will be completed at our office, which explains the number of payments, interest to be paid over the term of the agreement.
6. A statement for services rendered will be mailed to you at the beginning of the month. Receipt of payment is expected by the 10th of the month. You may make payments for your account by using a check or credit card. You may also have your credit card debited for monthly payments through our office payment plans.
7. Your account is considered delinquent if the requested payment is not received by the 15th of the month. If payable is not received, a late charge of 1 ½ % per month (18% per annum) or $10.00 minimum will be assessed and will appear on the next statement. Any accounts with balance over 60 days past due will be turned over to our collection activity. This may affect your credit!
8. A $20.00 charge will be applied to copies of X Rays to be transferred out to other dental offices except to insurance companies for billing purposes or to specialty offices for referred treatments.
9. A $25.00 charge will be billed to your account for any check returned by the bank for any reason. We will resubmit the check for payment to the bank one time. However, if funds are still insufficient, we will not accept payments by check from you in the future.
10. Your appointment time was reserved specifically for you. We make attempt to respect your time by being punctual. Late arrivals and broken appointments disrupt our schedule and interfere with other patients who need to schedule appointments. There will be no charge for a broken appointment with 24 hours' notice. This enables us to fill the reserved time slot for our list of patients who are able to come on short notice. Broken appointments with less than 24 hours' notice may incur a $40.00/hour scheduled time fee.

YES, I am interested in payment arrangements that may be made available to me in order to complete my dental treatment. I agree to have a credit report run to establish credit with Sierra Dental Group.

Name:_____SS#____-____-_____

NO, I decline the request for extended payments. I will pay in full at the time of service.

I have read and understand the financial policy of Sierra Dental Group. I agree to all the terms and conditions.

_____ _____

Patient Signature/ Parent or Guardian Date

Sierra Dental Group
Family & Implant Dentistry :: Orthodontics
Matthew Do D.D.S.

Sierra Dental Group
Family & Implant Dentistry

Steven K. Huh D.D.S.

1989 E. Pacheco Blvd Suite # I
Los Banos, CA 93635
Ph. 209.826.8600
Fax 209.826.8668

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 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" 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, home care, 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 (1/50th 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.[1] 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 materials, risks and benefits of dental amalgam should be discussed with the patient, expecially 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 is alleged to be allergic to nickel.[2] 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 in indicated.

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1 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.

2 Merck Index 1983, 10th Edition. M Narsha Windholz, ed.

Comparisons of Dental Restorative Materials

TYPES OF RESTORATIVE DENTAL MATERIALS								
	Made and Inserted by a Dentist				Made in a Dental Lab Using Models of the Prepared Teeth			
	AMALGAM	**COMPOSITE RESIN**	**GLASS IONOMER CEMENT**	**RESIN-IONOMER CEMENT**	**ALL PORCELAIN (CERAMIC)**	**PORCELAIN FUSED TO METAL**	**HIGH-GOLD ALLOYS**	**BASE METAL ALLOYS (NICKEL OR COBALT-CHROME)**
Description	A self-hardening mixture of liquid mercury + a silver, tin and copper alloy powder.	A mixture of powdered glass + plastic resin. 2 types: self-hardening, or hardening only by exposure to blue light.	A self-hardening mixture of glass + organic acid.	A mixture of glass + resin polymer (plastic) + organic acid; hardens by exposing it to blue light.	A glass-like material made like a clay pot – by firing it in an oven in a dental lab -- using models of the prepared teeth.	Same as all porcelain (ceramic), except that it is "enameled" onto a metal shell for extra strength.	Mixtures of at least 60% gold, plus copper and other metals for strength. Cast in a dental lab from models of the prepared teeth.	Mixtures of mainly nickel and chromium, cast in a dental lab.
Main Uses	Fillings. Sometimes used for replacing portions of broken teeth.	Fillings, inlays, veneers, partial and complete crowns. Sometimes used for replacing portions of broken teeth.	Small fillings, cementing porcelain or metal crowns, liners under another material, and as temporary restorations.	Small fillings, cementing porcelain and metal crowns, and liners under another material.	Inlays, veneers, crowns and bridges.	Crowns and bridges.	Crowns and bridges. Also used as the metal in some partial dentures.	The metal in most partial dentures. Some crowns and bridges.
Resistance to Future Decay	High. Its self-sealing property helps resist recurrent decay; however, new decay around an amalgam is hard to detect in its early stages.	Moderate. Recurrent decay is easily detected in early stages.	Low to moderate. Some resistance to decay may be imparted through slow release of fluoride.	Low to moderate. Some resistance to decay may be imparted through slow release of fluoride.	Good, if the restoration fits well.	Good, if the restoration fits well.	Good, if the restoration fits well.	Good, if the restoration fits well.
Durability (in Permanent Teeth)	Durable.	Strong, durable.	N/A. (Only used as a non-stress bearing crown cement.)	N/A. (Only used as a non-stress bearing crown cement.)	Moderate. A brittle material that may fracture under high biting forces. Not recommended for molar teeth.	Very good. Less susceptible to fracture than all porcelain, due to the metal substructure underneath it.	Excellent. Does not fracture under stress and does not corrode in the mouth.	Excellent. Does not fracture under stress and does not corrode in the mouth.
Amount of Original Tooth Preserved	Fair. Since it does not bond to the tooth, it requires removal of some healthy tooth structure so as to be held in place.	Excellent. Bonds adhesively to healthy enamel and dentin.	Excellent. Bonds adhesively to healthy enamel and dentin.	Excellent. Bonds adhesively to healthy enamel and dentin.	Good, moderate. Not very much natural tooth is removed for veneers; more is removed for crowns since porcelain strength is related to its bulk.	Moderate to high. Additional tooth structure must be removed to make room for the metal shell underneath the porcelain.	Good. A strong material that only requires removal of a thin outside layer of the tooth.	Good. A strong material that only requires removal of a thin outside layer of the tooth.

Surface Wear	Low. Surface wear is similar to natural dental enamel. However, thin parts of metal are more brittle.	May wear down 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.	Resistant to surface wear, but is abrasive to the opposing teeth.	Resistant to surface wear. Permits either metal or porcelain on the biting surface of crowns and bridges.	A similar hardness to natural enamel. Does not abrade the opposing teeth.	Harder than natural enamel, but minimally abrasive to opposing natural teeth. Does not fracture in bulk.
Breakage	Amalgam may fracture under stress. Also, the tooth around the filling may fracture before the amalgam does.	Good resistance to fracture.	Brittle; low resistance to fracture. Not recommended for stress-bearing restorations.	Tougher than glass ionomer; recommended for stress-bearing restorations in adults.	Poor resistance to fracture.	Porcelain may fracture.	Does not fracture when in bulk.	Does not fracture in bulk.
Leakage	Good. Seals itself on a small scale by surface corrosion. Margins may chip over time.	Good if bonded to enamel. If bonded to dentin, it may show leakage over time. Does not corrode.	Moderate; tends to crack over time.	Good. Adhesively bonds to resin, enamel, + dentin. Early expansion may help seal the margins.	Very good. Can be fabricated for a very accurate fit.	Good to very good depending upon the design of the edges of the crowns.	Very good to excellent. Can be formed with great precision and can be tightly adapted to the tooth.	Good to very good. Stiffer than gold, less adaptable, but can be formed with great precision.
Resistance to Biting Forces	High. However, 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 for biting surfaces of adults; suitable for short-term uses in baby teeth.	Moderate. A brittle material susceptible to fracture under biting forces.	Very good. The metal underneath gives high resistance to fracture.	Excellent.	Excellent.
Toxicity	Generally safe. Occasional allergic reactions can occur to metal ingredients. Does contain mercury, which in its elemental form is toxic and Prop 65 listed.	Safe; no known toxicity documented. Contains some Prop 65 compounds, but concerns about trace chemical release are not supported by research.	Safe; no known toxicity documented. No known problems.	Safe; no known toxicity documented. No known problems.	Excellent. No known adverse effects.	Very good to excellent. Occasional or rare allergies to the metal ingredients.	Excellent; rare allergies to some alloys.	Good. Nickel allergies are common among women, but are rarely seen in dental work.
Allergic or Adverse Reactions	Rare. Recommend that dentist evaluate patient to rule out any 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 and periodontal disease.	No known documented allergic reactions. Surface may roughen slightly over time, predisposing to plaque and periodontal disease if the material contacts the gums.	None.	Rare. Occasional allergy to the metal underneath.	Rare. Occasional allergic reactions seen in susceptible individuals.	Occasional. Infrequent reactions to nickel can occur.

Glossary of Terms

# of Visits Required -- On average, how many times a patient would have to go to their dentist's office in order to get a restoration made from this material.

Abrasive -- A material which is so hard that over time it wears away the surfaces of natural teeth which bite against it.

Allergic or Adverse Reactions -- Body reaction to the material, overall or in just a small area.

Amount of Tooth Preserved -- A general measure of how much of the original tooth needs to be removed in order to put in the material.

Appearance -- Visually, how much does this material resemble natural tooth structure?

Biocompatibility -- The effect, if any, of the material on the general overall health of the patient.

Dental Amalgam -- A filling material which is composed mainly of mercury (43 - 54%) and varying percentages of silver, tin, and copper (46 - 57%).

Description -- A brief statement of the composition and behavior of the denture material.

Durability -- How strong this material acts in the mouth environment.

Frequency of Repair or Replacement -- A very general indication of how often this material will have to be replaced. (This will also depend upon many other factors, such as the biting habits of the patient, their diet, the strength of their bite, oral hygiene, etc.)

Leakage -- The ability of the material to "self-seal" small holes at its edges, thereby helping to prevent sensitivity and new decay.

Main Uses -- How this material is used in dentistry.

Post-operative Sensitivity -- After the dental work is done, the tooth is sensitive to heat, cold, sweets, and/or pressure. This is usually temporary, and gets progressively better as time goes by. However, some amount of sensitivity may be permanent.

Relative Cost -- How much would this material cost relative to your other choices?

Resistance to Biting Forces -- The ability of the material to survive biting forces over time.

Resistance to Future Decay -- The general ability of the material to prevent decay around it.

Surface Wear / Breakage -- How well does the material hold up over time under the forces of biting, grinding, clenching, etc.

Toxicity -- Is there any indication this material can interfere with normal bodily processes beyond the mouth?