Risk Assessment Project

Bruna M. Rett

Department of Dental Hygiene, West Los Angeles College

DH 388: Introductory Seminar to Dental Hygiene

Professor Carlos Sermeño and Professor Amanda de la Vega

May 23th, 2023

I. Personal History

1. Age: 36 years old.
2. Sex: Female.
3. Race/Ethnicity: White.
4. Occupation: Risk Management Coordinator.
5. Marital status: Single.

II. Medical History

1. Past and current medical history

- Patient is not currently under the care of a physician.
    - There has been no change in her general health within the past year.
- Client takes prescription medications.

2. Family health history

- The client's biological mother has history of depression disorder.
    - Hence the client is currently taking Lexapro due to genetic predisposition to mental health issues.
- The client's biological father has history of alcoholism.
    - Client reports having an average of 1-2 drinks a week, which is not an indicator of alcohol abuse.
        - However, the client has predisposition to alcohol issues and needs to stay aware of the condition.

3. Review of systems (neurological, psychological, functional, respiratory, cardiovascular, dermatological, gastrointestinal, sexual, hematological, endocrine, immunological)
    - Upon thorough extraoral and intraoral examinations that were completed at each dental visit:
        - The client's neurological system appears to be functioning appropriately when observing her gait from the moment she walked into the office until she walked out. Upon tracking her eye movement by using index finger, the patient had no issues when moving her eyes.
        - The patient's psychological and functional systems are within normal limit, especially given the fact that she takes medication for depressive disorder.
            - When analyzing her mental health and personal safety, even though the client stated that she has stress, it does not seem to be an issue in which she seriously thinks about hurting herself.
        - Upon taking the patient's vital signs (such as blood pressure/temperature/respiration/oxygen saturation) and checking the throat and oral cavity, the client's respiratory and cardiovascular systems appears to be in good condition.
        - The client's dermatological and GI systems seems to be within normal limits, despite of taking medications that may have an impact on health.

- When it comes to the patient's sexual and endocrine systems, it appears to be within a normal range that is expected when taking medications such as birth control.
- The patient's hematological and immunological systems are in healthy conditions given the fact that the patient did not bleed excessively during scaling and has not complained of sore gingiva/tissues after receiving treatment.
    - Patient states that has no past or current implications with bone or healing.

4. Current medication(s) - including systemic implications and/or oral/dental/concerns

- Lexapro (Escitalopram):
    - Client takes by mouth 15 mg daily (in the morning) without food for treatment of depression disorder.
    - Systemic complications can be related to the impairment of platelet aggregation due to the platelet serotonin depletion, which can possibly lead to bleeding complications.
    - Oral/dental concerns may be related to bruxism, which have been reported and may preclude their use.
        - No precautions appear to be needed when it comes to local anesthetic/vasoconstrictor in terms of epinephrine.
- Nexplanon (Etonogestrel):

- Patient has a birth control arm implant that contains sufficient hormone levels to inhibit ovulation for 3 years.
- There is not enough information available when it comes to the medication's effects on bleeding or any adverse effects on dental treatment.
  - Due to the risk of thromboembolism that is associated with pregnancy and the immediate postpartum period, the manufacturer does not recommend re-insertion of implant <21 days postpartum.
- This subcutaneous method of birth control did not have information concerning the combined use of antibiotics.

5. Baseline vital signs

- Monitoring the client's vital signs is extremely important in order to record the progress of treatment and to detect any anomalies that the patient may not be aware of.
- Making sure that the patient has a healthy pulse, blood pressure, oxygen, respiration and temperature decreases the likelihood of having to deal with medical emergencies in the dental office.
- In case of any abnormal vital signs, referrals may be needed in order to continue to monitor the progress of disease.
- An average of the client's baseline vital signs was collected over a total of 4 appointments so far:

- Blood Pressure: 116/75 mmHg – healthy range.

BLOOD PRESSURE CATEGORY	SYSTOLIC (mm Hg)	DIASTOLIC (mm Hg)
Healthy	less than 120	and less than 80
Elevated	120–129	and less than 80
Stage 1 hypertension	130–139	or 80–89
Stage 2 hypertension	140 or higher	or 90 or higher
Hypertension crisis	over 180	or over 120

- Oxygen Saturation: 98.7% - healthy range.

RANGE
Healthy Adult: 90% -100%
WLA Clinic: 95% - 100%

- Respiration: 14 BPM – healthy range.

RANGE
- **Normal Adult: 12 to 20 breaths per min**
- Normal Child: 18 to 22 breaths per min

- Temperature: 98.6 °F – healthy range.

RANGE
Normal Adult: 96.4'F to 99.6'F

- Pulse: 71 BPM – healthy range.

ADULT

Normal Pulse: **60 to 100 beats per minute**
Tachycardia: above 100 beats per minute
Bradycardia: below 60 beats per minute

6. <u>BMI</u>

- 29.0
- A Body Mass Index of 29.0 indicates that the client is overweight, and borderline obese.

- BMI is a screening measure that uses the client's weight and height to determine a healthy weight range and is not intended to diagnose disease or illness but maintaining a healthy BMI range is one way to support overall health as the client ages.

- Having excess weight may increase the risk for chronic conditions such as high blood pressure, high cholesterol and diabetes type II.

BMI	Weight Status
<18.5	Underweight
18.5-24.9	Healthy Weight
25.0-29.9	Overweight
30.0 and Above	Obesity

7. Medical history correlation with ASA status

- Since the client takes two medications that are prescribed by medical doctors to treat mild systemic conditions:
  - The physiological status for this patient is ASA II.
  - Mild disease without substantive functional limitations and no significant side effects due to medications were reported by the client.
  - The American Society of Anesthesiologists (ASA) classification system does not predict the perioperative risks, but when used with other factors can be helpful in predicting perioperative risks.
  - The final assignment of Physical Status classification is made on the day of anesthesia care by the anesthesiologist after evaluating the client prior to the procedure.

III. Dental History

1. Extraoral and intraoral examination findings and correlation

- Head and neck extra oral examination:
    - Lymph nodes, glands, trachea, eyes, and dysphagia were within normal limits and no abnormal findings were detected.
- Head and neck intra oral examination:
    - Glands, alveolar ridges, gingiva, labial/buccal mucosa, pharynx, tonsils, tongue, uvula and salivary flow were within normal limits.
    - Overjet: 2 mm.
    - Overbite: 2 mm.
    - Open Bite: client presents with no open bite.
    - Crossbite: client presents with no crossbite.
    - Maximum Opening: 45mm.
    - Occlusion
        - Right and Left Molar Relationship: the mesiobuccal cusp of the maxillary first molar occludes with the buccal groove of the mandibular first molar; Class I Angle's Classification of Occlusion (neutrocclusion) with a Mesognathic profile – protruding jaw with "flat face" appearance.
        - Right and Left Canine Relationship: the maxillary canine occludes with the distal of the mandibular canine and the mesial of the mandibular first premolar; Class I Angle's Classification of

Occlusion (neutrocclusion) with a Mesognathic profile – protruding jaw with “flat face” appearance

- Bilateral mandibular tori were detected, with the left side being single lobulated approximately 7mm; and the right side is doubled lobulated, with the smallest being about 3 mm, and the largest about 4 mm.

2. <u>TMJ assessments and oral habits</u>
    - Crepitus of the TMJ was detected on the left side.
        - Patient states that to help with bruxism she uses an OTC disposable dental guard every night:

3. Cultural/ethnic influencing factor

- Client is currently studying cultural practices based on African rituals that are related to witchcraft and the spiritual world.
    - The influence of such beliefs positively affects the client greatly spiritually and emotionally, hence helping ease depression and anxiety.

3. Dental exam

- The last dental exam the client had dates back to August 2016 for regular scaling.
- Patient does not currently experience dental pain or discomfort.
- No bleeding when brushing and/or flossing.
- Slight sensitivity to cold or hot drinks reported occasionally by the client.
- No xerostomia, periodontal or orthodontic treatments.
- Client complains about discomfort in the jaw sporadically due to bruxism.

4. Inlay, onlay, veneers, PFMs, bridges, ITR, other(s)

- Occlusal amalgam fillings on teeth #3 and #14.
- Occlusal buccal resin composites on tooth #30.

5. Dental Implants

- None.

6. Current or Hx of orthodontic treatment

- None.

IV. Clinical Examination (Pre-Treatment)

1. Frequency of dental hygiene services.

    - Client states that dental visits are not as frequent as she would like due to the lack of dental insurance. Patient states that she does not have a routine for regular dental hygiene services.

2. History of SRP

    - Patient has never had an SRP.

3. Hx of periodontal disease and/or surgery.

    - Client has had caries in the past that were treated with fillings, but no periodontal surgeries were needed.

4. Teeth missing due to orthodontics, caries, periodontal reasons, other.

    - None.

5. Evaluation of periodontal structures and indices.

    - Gingival Description
        - Client presents with generalized healthy tissue (maxillary and mandibular) that includes:
        - Uniform pink color; the marginal gingiva meets the tooth slightly coronal to the CEJ; the interdental papillae fills the interproximal spaces; the

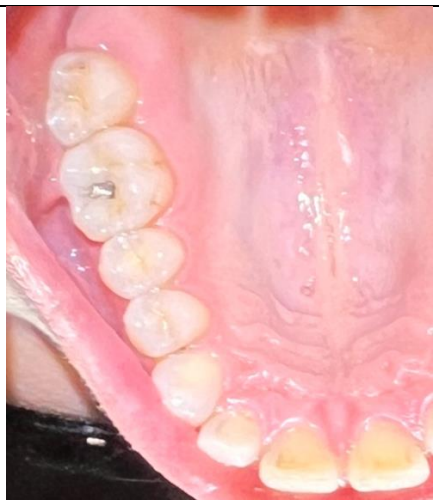
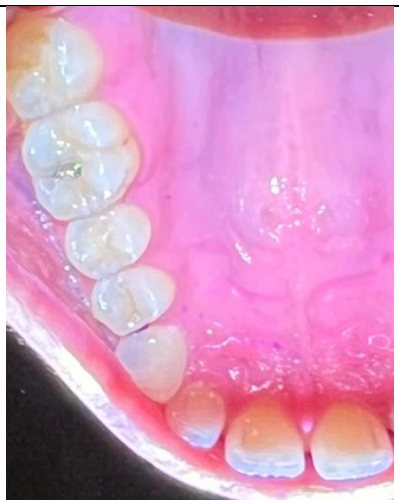
consistency is firm; the free gingiva is smooth; the attached gingiva is stippled.

- Gingival Index
    - The Gingival Index (GI) measures the amount of gingival inflammation that assesses the severity and quantity of gingival inflammation.
    - Since the client had localized sulcular bleeding on the distobuccal of tooth #3, the GI for this patient is 2.

Points	Appearance	Sulcular Bleeding	Inflammation
0	Normal	None	None
1	Slight color change, mild edema, slight texture change	None	Mild
2	Erythema, hypertrophy, edema, glazing	Bleeding on Probing	Moderate
3	Marked erythema, hypertrophy, edema, possible ulceration	Spontaneous Bleeding	Severe

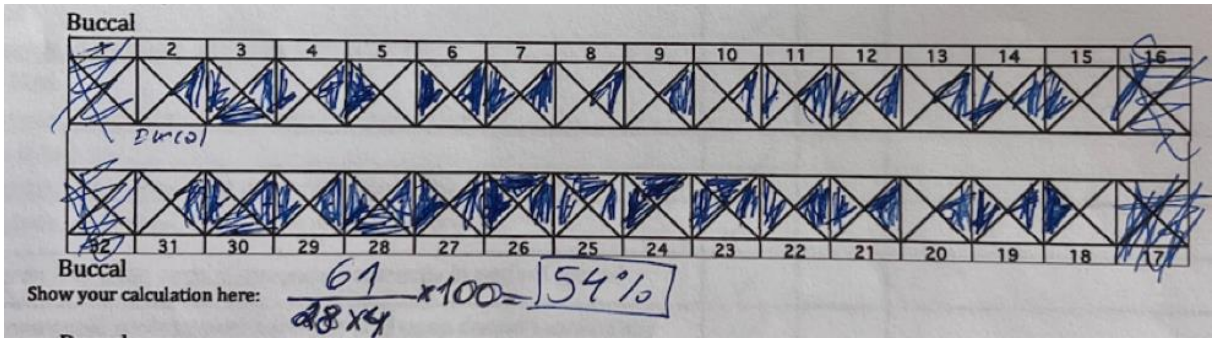
- Marginal Bleeding Index
    - The Marginal Bleeding Index (MBI) is measured by sweeping the probe along the sulcus, from interproximal to interproximal in one quadrant.
    - The calculation for the MBI is similar to the Plaque Control Record (PCR).
    - Since the client had localized MBI on the buccal aspect of tooth #3, the MBI is 0.9%
- Plaque Control Record
    - The Plaque Control Record (PCR) is a quantitative measurement of the amount of biofilm that is observed upon disclosing a purple solution. The PCR for this patient is 54%.

	Before Disclosing	After Disclosing
Smile		
Frontal		
Right Buccal		
Left Buccal		

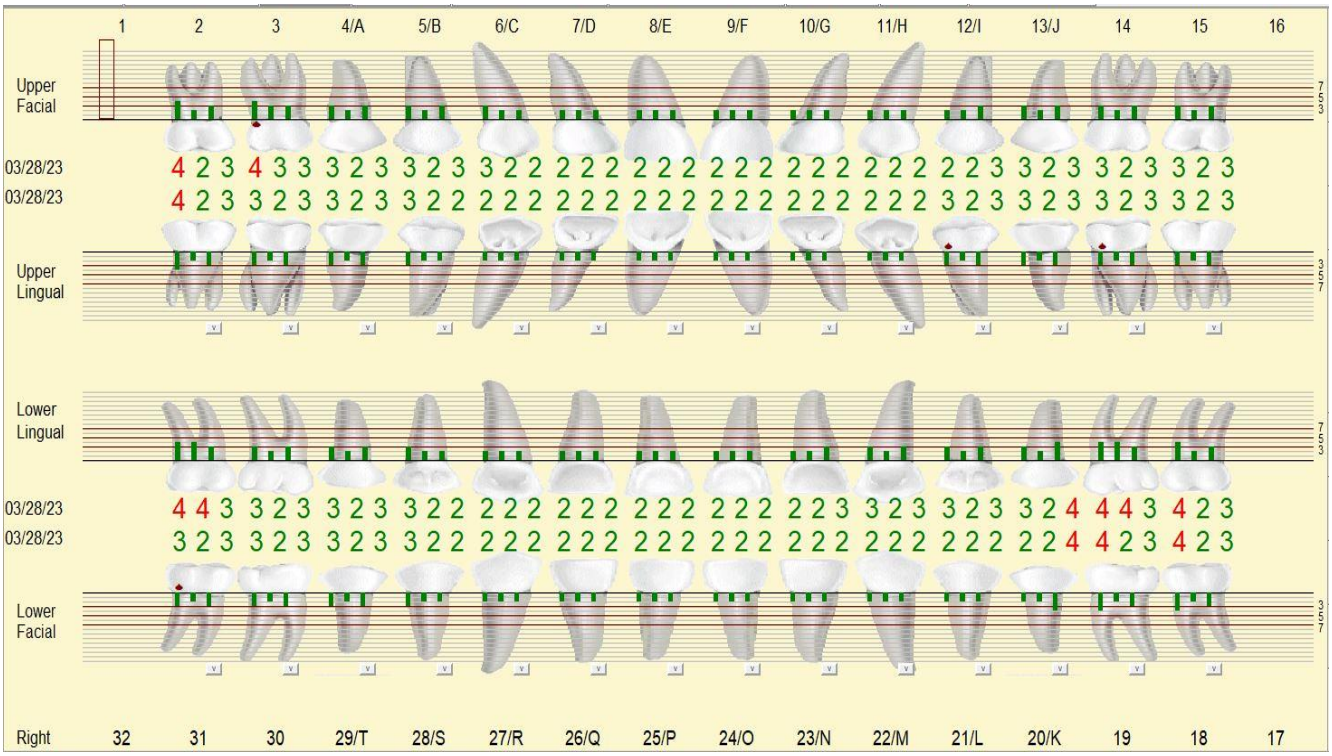
Maxillary Right Palatal		
Maxillary Left Palatal		
Mandibular Right Lingual		

Mandibular Left Lingual		
Full Maxillary Arch (occlusal view)		
Full Mandibular Arch (occlusal view)		
Maxillary Anterior Palatal		

Mandibular Anterior Lingual		



- Probing Depth



- Recession: client presents with no recession.

- BOP: client presents bleeding on probing on the distobuccal aspect of tooth #3.
- CAL: client presents with no clinical attachment loss.
- Furcation Involvement: client presents with no furcation involvement.
- Mobility: no mobility detected upon examination by using two single-ended metal instruments and applying alternate pressures.
- DMFT
    - The Decayed, Missing, and Filled Teeth index (DMFT) is the sum of the client's teeth or surfaces that contains any DMFT.
    - This dental indices does not indicate the number of teeth that are at risk or the number of sound teeth.
    - Third molars or any teeth that have been extracted for orthodontic purposes or impactions are NOT counted as missing.
    - The client presents with a total of 3 filled teeth, no active decay or missing teeth, hence her DMFT score is 3.
- WLAC Calculus Code: 3 Light Medium.
    - The client presents with mostly subgingival calculus on approximately 50% of the interproximal surfaces.
    - It should take a minimum of two appointments to complete a full mouth scaling.
- Possible Periodontal Genetic Component Related to Periodontal Status
    - Depression Disorder is a genetic component that may affect oral health by increasing the risk of dental caries due to oral hygiene neglect, preference

for carbohydrates in order to increase serotonins levels, and drug-induced xerostomia.

- Alcoholism is a genetic component that may influence individuals by increasing their risks for oral cancer, periodontal disease, caries, halitosis, tooth wear, trauma and staining.

6. Etiology

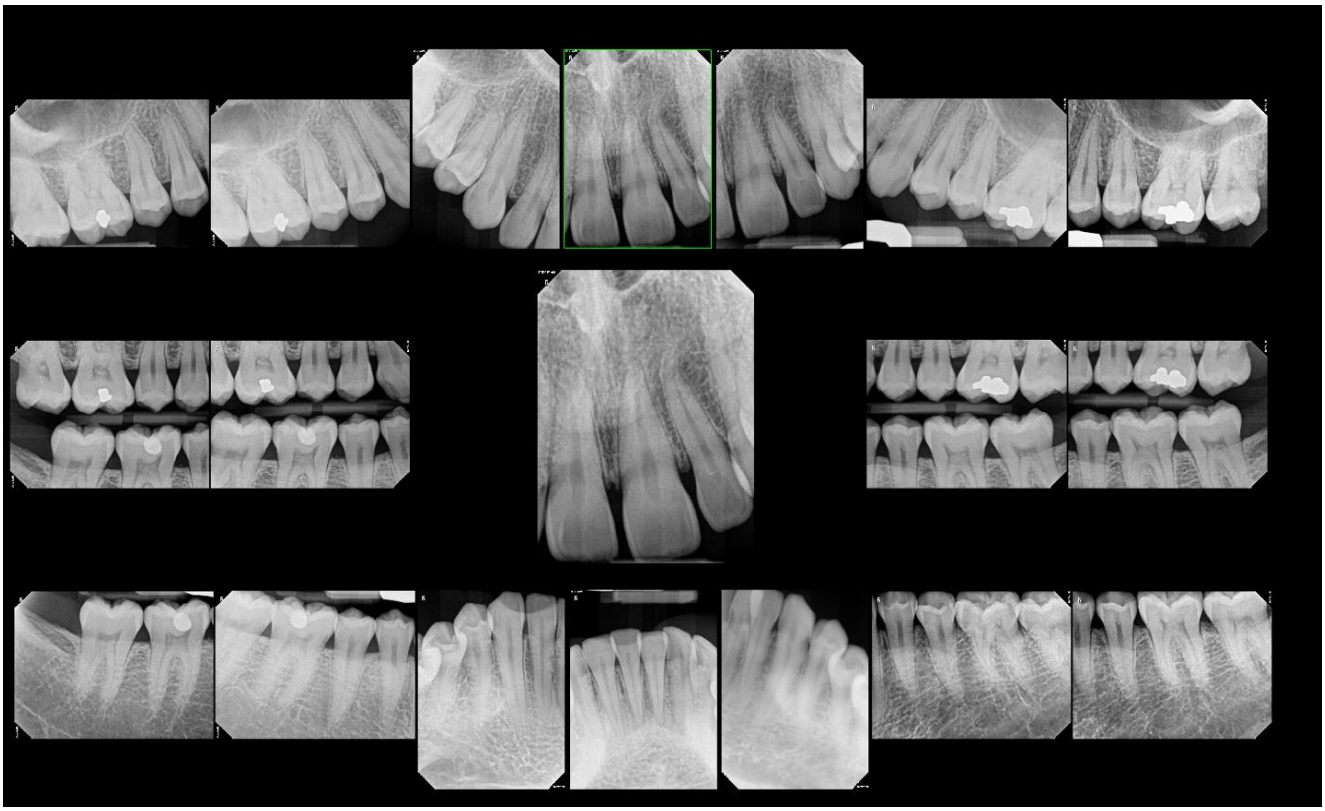
- Dental biofilm and calculus are formed on supragingival and subgingival teeth surfaces.
    - Client is at high risk for caries since she does not floss regularly and currently has multiple incipient caries.

8. Local factors identified and recorded

- Furcation Involvement: no furcation involvement.
- Possible Carious Lesions
    - Incipient caries can be observed between the tooth contact radiographically on teeth #18-mesial; #19-distal and mesial; #20-distal; #31-mesial; #30-distal and mesial; #29-distal.
- Faulty Restorations: no faulty restorations.
- Anatomical Factors: mandibular tori bilaterally.
- Malocclusion: no malocclusion.
- Missing/shifted teeth: mandibular anterior drift due to crowding on the lingual aspect.

V. Radiographic Interpretation

1. Radiographic Interpretation for periodontium and oral pathology



- RBL
    - Less than 15% of coronal third radiographic bone loss.
- Lamina Dura

    - Not as well-defined radiopaque line on mandibular anterior teeth and posterior molars.
- Alveolar Crest (active bone loss/arrested/healthy)
    - Generalized 1-2 mm horizontal bone loss.
    - No active bone loss appears to occur, especially in areas with incipient caries.
    - Incipient caries is in an arrested condition.
- Type of Bone Loss
    - Generalized horizontal bone loss 1-2 mm.
- PDL Space
    - Localized funneling
- Possible Carious Lesions
    - Incipient caries observed on teeth #18-mesial; #19-distal and mesial; #20-distal; #31-mesial; #30-distal and mesial; #29-distal.
- Condition of Dental Restorations
    - The conditions of the dental restorations are good.
- Periapical Areas/Pathology:
    - No radiolucency on PA's or pathology noted.
- Radiographic Confirmation of Local Factors
    - Occlusal amalgam fillings (radiolucent) on teeth #3 and #14.
    - Occlusal buccal resin composites on tooth #30.
- Crown-to-Root Ratio

- Generalized 1:2 crown to root ratio, which is considered healthy (always want to have more root than crown).

VI. Periodontal Classification and Rationale

1. Stage and Rationale

- Gingivitis
  - Dental biofilm associated.
  - No attachment loss.
  - Mediated by systemic or local risk factors.
  - Inflammation of gingival tissues limited to the epithelium and gingival connective tissue.

2. Grade and Rationale

- Grade B
  - 0.25-1.0% of generalized bone loss due to age.
    - Destruction consistent with biofilm deposits.

VII. Treatment Plan and Supporting Rationale

1. Considerations, SRP, prophylaxis, number of appointments required to implement treatment plan

- Prophylaxis is recommended for this client and a minimum of 2 appointments is needed:
  - Appointment 1: right half mouth.
  - Appointment 2: left half mouth.

- Appointment 3 should ideally take place 4-6 weeks after appointment 2, in which the patient is re-evaluated, given more oral hygiene instruction, selective polishing, and make a decision on maintenance intervals.
    - Usually 3 months or less, maybe even 6 months if client presents with excellent oral hygiene home care and is at no high risk for caries.

2. Recommendation for Supportive Periodontal Therapy (Periodontal Maintenance/Re-care Routine).

- Re-care routine should be based on using products with fluoride such as toothpaste and mouthwash.
    - This helps speed up the remineralization process of the teeth.
- Prophylaxis every three months is recommended to help prevent the buildup of supragingival and subgingival calculus.
- Per DDS upon patient's screening, no referrals are needed.
    - However, monitor incipient caries in case condition worsens.
    - Emphasize the use of fluoridated oral hygiene tools.
- The client may benefit from professional fluoride varnish.
    - Due to the presence of multiple incipient caries.
- The client may benefit from sealants.
    - Due to deep pits and fissures that currently are at high risk of caries for teeth #2, #15, #18, #19, and #31.

VIII.-a: 3-Day Dietary Nutrition Report and Analysis (Pre-nutritional counseling)

- BMI: 29.0
- Weight status: overweight.
- Does not take any vitamins or supplements.
- Daily water intake comes mostly from coffee as a source of hydration.

BMI	Weight Status
<18.5	Underweight
18.5-24.9	Healthy Weight
25.0-29.9	**Overweight**
30.0 and Above	Obesity

Day 1 Food Diary

Food eaten or Beverage Drank	Amount Eaten or Drank	Client's Estimated Calories	Actual Calories
Coffee with collagen + creamer	12 oz	140	140
Ham and Cheese Croissant	1	340	338
Iced coffee black	12 oz	10	5
Chomp's meat stick	1	60	90
Corned beef & cabbage, carrot and potato	1 plate	680	464
Coffee + creamer	8 oz	140	66
Chocolate chip cake	1 slice	250	350
Ghirardelli chocolate	2	140	130
Small chicken Caesar salad	1	360	479
		Total: 2,120	Total: 2,062

First Set of Food Diary 03/18/2023

Day 2 Food Diary

Food eaten or Beverage Drank	Amount Eaten or Drank	Client's Estimated Calories	Actual Calories
Homemade London fog latte with almond creamer	12 oz	140	165
1 egg, hasbrown, ketchup, 2-piece gluten free toaster with butter	1 plate	360	511
Small dark chocolate bar	1	90	302
Coconut margaritas	2	750	1,176
Chicken enchilada with rice	1 plate	800	460
		Total: 2,200	Total: 2, 614

First Set of Food Diary 03/19/2023

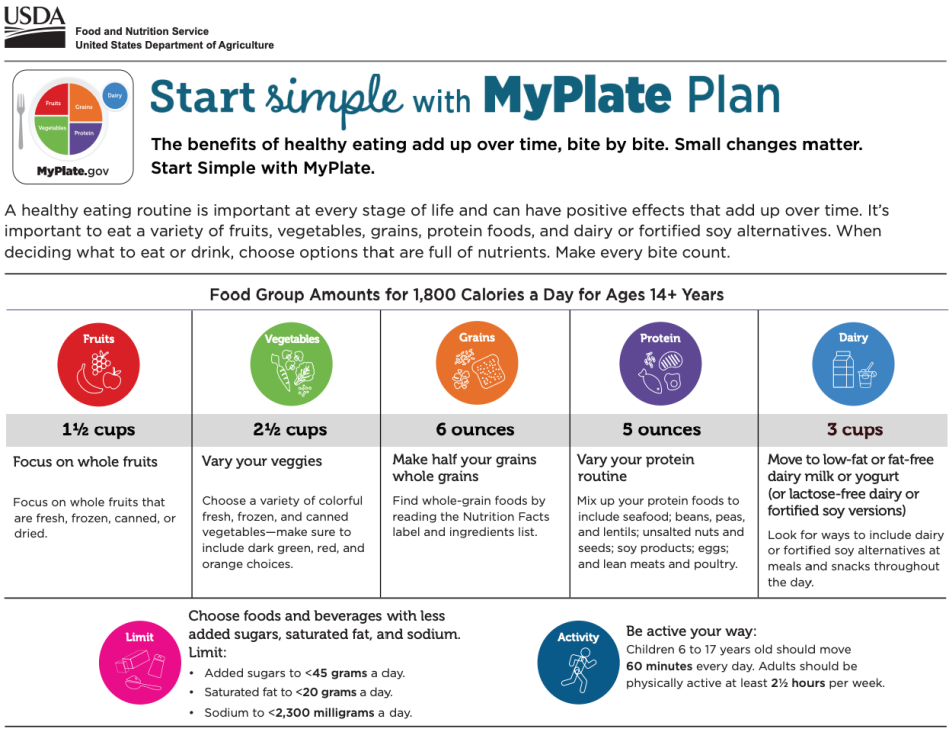
Day 3 Food Diary

Food eaten or Beverage Drank	Amount Eaten or Drank	Client's Estimated Calories	Actual Calories
Coffee with collagen + creamer	12 oz	140 cal	140
2 hash browns with eggs and ketchup	1 plate	380 cal	180
Small chicken salad with vegan dressing	1 bowl	400 cal	425
Mini peanut butter crackers	2	60 cal	135
Corned beef & cabbage, carrot and potato	1 plate	300 cal	464
Yellow veggie curry with white rice	1 cup	450 cal	420
Dark chocolate bar	1	90 cal	302
		Total: 1,820	Total: 2,066

First Set of Food Diary 03/20/2023

VIII.-b: 3-Day Dietary Nutrition Report and Analysis (Nutrition)

- Patient expresses the desire to achieve a healthy weight.
- The average of the patient's current daily dietary intake is approximately 2000 calories. The recommended amount according to MyPlate Plan to achieve a healthy weight is 1800 calories daily.
- The 5 food groups recommended by MyPlate plan is 1 ½ cups of fruits; 2 ½ cups of vegetables; 6 oz of grains; 5 oz of protein; 3 cups of dairy. The limit should be <45g a day of added sugars; <20g a day of saturated fat; <2,300 mg a day of sodium. It is recommended at least 2 ½ hours per week of physical activities.
- Patient fails to meet recommendations when it comes to fruits and vegetables. Patient exceeds daily recommendations when it comes to added sugars and saturated fat.
- Nutritional counseling regarding eating more fruits and vegetables should be implemented.



USDA
Food and Nutrition Service
United States Department of Agriculture

MyPlate.gov

Start simple with MyPlate Plan

The benefits of healthy eating add up over time, bite by bite. Small changes matter. Start Simple with MyPlate.

A healthy eating routine is important at every stage of life and can have positive effects that add up over time. It's important to eat a variety of fruits, vegetables, grains, protein foods, and dairy or fortified soy alternatives. When deciding what to eat or drink, choose options that are full of nutrients. Make every bite count.

Food Group Amounts for 1,800 Calories a Day for Ages 14+ Years

Fruits	Vegetables	Grains	Protein	Dairy
1½ cups	**2½ cups**	**6 ounces**	**5 ounces**	**3 cups**
Focus on whole fruits Focus on whole fruits that are fresh, frozen, canned, or dried.	Vary your veggies Choose a variety of colorful fresh, frozen, and canned vegetables—make sure to include dark green, red, and orange choices.	Make half your grains whole grains Find whole-grain foods by reading the Nutrition Facts label and ingredients list.	Vary your protein routine Mix up your protein foods to include seafood; beans, peas, and lentils; unsalted nuts and seeds; soy products; eggs; and lean meats and poultry.	Move to low-fat or fat-free dairy milk or yogurt (or lactose-free dairy or fortified soy versions) Look for ways to include dairy or fortified soy alternatives at meals and snacks throughout the day.

Limit

Choose foods and beverages with less added sugars, saturated fat, and sodium.
Limit:
- Added sugars to <**45 grams** a day.
- Saturated fat to <**20 grams** a day.
- Sodium to <**2,300 milligrams** a day.

Activity

Be active your way:
Children 6 to 17 years old should move **60 minutes** every day. Adults should be physically active at least **2½ hours** per week.

VIII.-c: 3-Day Dietary Nutrition Report and Analysis (Exercise).

- Patient expresses that she would like to achieve a healthy weight.
- The 4 key guidelines for patients according to Physical Activity Guidelines for Adult Americans are:
    - Move more and sit less throughout the day. Some physical activity is better than none.
    - Preferably aerobic activity should be spread throughout the week.
    - 300 minutes of moderate-intensity physical activity a week is recommended.
    - Muscle strengthening activities 2 or more days a week is recommended.
- Patient's current amount of physical activity is less than 30 minutes, but the recommended amount is 2 ½ hours per week.

IX. Carbohydrate Analysis

- Cariogenic fermentable carbohydrates that are present on the client's diet is white bread, white rice, and chocolate.
- A grand total of 4 sugar liquid exposure was determined during the carbohydrate analysis.
- Also, a grand total of 4 sugar solid exposure was determined during the carbohydrate analysis.
- An average of 160 minutes of acid exposure was determined during the first set of 3-day diet analysis.
- The oral cavity has been exposed to carbohydrates, therefore placing the client at a high caries risk.

- The recommendation is to decrease the solid carbohydrate intake such as chocolate, and drink about 4 to 6 cups of water a day.
- The goal is to place the patient's teeth at a low caries risk.

X. Relevant Patent Information as it Relates to Nutrition - 1

- Client is a full-time worker with currently two jobs, which has drastically altered her eating schedule, as well as raising the number of snacks and coffee that are consumed during the week.
- Patient lives alone and cooks sometimes. She does her own grocery shopping in person, as well as ordering through apps.
- Patient orders at least 3 times a week food delivery because it is convenient. Usually fast foods such as tacos and pizza.
- Client states that she prefers a home-cooked meal but wishes she had more time to invest on this task. She states that cooking at home is time consuming and she needs to go to her jobs.
- Patient usually have 2 meals a day, but snacks on chocolate often when working from home for one of her jobs.

XI. Relevant Patent Information as it Relates to Nutrition - 2

- Patient does not have any food allergies or intolerances.
- Patient does not have a preferred diet routine. She likes eating all types of food including vegan, vegetarian and plate based. She expresses the desire to eat better.
- Patient is from Texas and cultural influences may dictate the way she eats, especially when it comes to eating a lot of red meat and barbeque.

- Religious influences may affect the patient's diet such as teas, spices and herbs.
- There are no systemic conditions with this patient.
- Patient is not pregnant nor nursing.
- When comparing the client's dietary intake with the Dietary Guidelines for Americans, the patient exercises very little, which is better than nothing.
- Patient does not practice 300 minutes of moderate to intense physical activity nor muscle-strengthening activity 2 or more days a week.

XII. Relationship of Nutrition and Health

- The nutritional findings related to this patient does not currently have any issues linked to any systemic diseases yet.
    - However, if the client is not able to reduce the amount of daily carbohydrate intake, the risk of cardiovascular or systemic diseases will be significantly increased overtime.
- If patient continues to ingest alcoholic beverages and chocolate during the weekends, it will eventually lead to dental carious lesions or even tooth loss due to periodontitis.
- An individual's nutrition habits are directly correlated to periodontal disease. If the patient keeps on ingesting acidic foods, added sugars, saturated fats and sodium, it will lead to an increased risk of periodontal disease in the future.

XIII. Nutritional Counseling and Goals (Implementation)

- The goal is for the patient to not exceed 1,800 calories a day. Currently, she eats closed to 2,000 calories a day.

- Client needs to focus on whole fruits, a variety of veggies, whole grains, variety of proteins, and low-fat dairy.
- Exercise recommendations for the patient is to take at least 30 minutes of exercising at home whenever she can.
    - She also mentions she has a workout machine at home.
    - She wants to be able to do aerobic exercises at least three times a week for at least 30 minutes per session.
- The client's water intake is poor, and she needs to add more liquids other than coffee in her diet.
    - The ultimate goal is to have the client consuming 4 to 6 cups of pure water a day.
- 3 GOALS TO FOCUS ON:
    1. Eat less sugary food during the week.
    2. Drink more water than coffee.
    3. Exercise on the elliptical workout machine at home 3x a week.
- Remember: some exercise is better than none. Keep in mind that some days are easier than other, and if the week didn't come out as expected, try to start all over again next week. Do not give up the entire goals just because a few days didn't go according to plan. PERSISTANCE IS THE KEY!

XIV. Correlation of Findings and Nutritional Counseling and Goals

- By identifying the strengths and weaknesses in the client's diet, a healthy eating plan emphasizes fruits, vegetable, whole grains (at least half of grains), low-fat or fat-free products.
- Includes eating more lean meats, fish, poultry, eggs, nuts and beans.

    - Limiting saturated and trans fats, salt (sodium) and added sugars.
    - Decreasing sugar consumption such as coffee is one of the main goals for this patient.
- Oral hygiene instructions should be focused on flossing and brushing to help remove dental plaque biofilm, especially in the lower anterior sextant.
    - Also, drinking more water should help with increased salivary flow and reduction of harmful gram-negative bacteria.
- Since the patient has a diet that is high on sugar and sodium, the nutritional goals that were set for the client is fitting for the individual.
- Consistence in the diet and exercising overtime should benefit the overall health of the patient.

XV. 3-Day Dietary Nutrition Report and Analysis (Post-nutritional counseling)

- BMI: 29.0
- Weight status: obesity.
- Does not take any vitamins or supplements.
- Daily water intake still coming mostly from coffee as a source of hydration.
- The similarities found between the first and second set of food diaries is that the client continued to obtain most of the water intake with beverages such as coffee and tea.
    - The client did not add exercise to her daily routine as discussed previously.
    - The client did not add aerobic or muscle-strengthening exercises to her weekly routine.
- The difference found between the first and second sets of food diaries is that the client reduced the amount of daily calorie intake about 500 less calories.

BMI	Weight Status
<18.5	Underweight
18.5-24.9	Healthy Weight
25.0-29.9	**Overweight**
30.0 and Above	Obesity

Day 1 Food Diary

Food eaten or Beverage Drank	Amount Eaten or Drank	Client's Estimated Calories	Actual Calories
Coffee with cream	8 oz	140	140
Croissant	1	250	231
Caesar salad	1	300	370
Coffee with cream	8 oz	140	140
Chips	1 small bag	230	150
Angel hair pasta	1 serving	650	209
		Total: 1,710	Total: 1,240

Second Set of Food Diary 04/14/2023

Day 2 Food Diary

Food eaten or Beverage Drank	Amount Eaten or Drank	Client's Estimated Calories	Actual Calories
Coffee with cream	8 oz	140	140
Egg and hash brown	1 plate	320	165
Coffee with cream	8 oz	140	140
Grilled cheese sandwich	1	210	240
Pad Thai	1 plate	800	838
Popsicle	1	140	41
		Total: 1,750	Total: 1,564

Second Set of Food Diary 04/15/2023

Day 3 Food Diary

Food eaten or Beverage Drank	Amount Eaten or Drank	Client's Estimated Calories	Actual Calories
Coffee with cream	8 oz	140	140
Eggs with bacon	1 plate	280	231
Coffee with cream	8 oz	140	140
McChicken with 1 large fry	1	650	140
Yellow curry with brown rice	1 plate	700	150
Chamomile tea with honey	8 oz	80	209
		Total: 1,990	Total: 1,010

Second Set of Food Diary 04/16/2023

XVI. 3-Day Dietary Nutrition Report and Analysis (Nutrition)

- Food group targets for a 2, 200 calorie patterns are:

1. 2 Cups of Fruit.
    a. 1 cup of fruit counts as 1 cup of raw or cooked fruit; or ½ cup dried fruit or 1 cup 100% fruit juice.
2. 3 Cups of Vegetable.
    a. 1 cup of vegetables counts as 1 cup of raw or cooked vegetables; or 2 cups of leafy salad greens; or 1 cup of 100% vegetable juice.
3. 7-ouce Equivalents of Grains.
    a. 1 ounce of grains counts as 1 slide of bread; or 1 ounce ready-to-eat cereal; or ½ cup of cooked rice, pasta or cereal.
4. 6-ounce Equivalents of Protein.
    a. 1 ounce of protein foods counts as 1 ounce of seafood, lean meats, or poultry; or 1 egg; or 1 tablespoon of peanut butter; or ¼ cup of cooked beans, peas, or lentils; or ½ ounce of unsalted nuts or seeds.
5. 3 Cups of Dairy.
    a. 1 cup of dairy counts as 1 cup of dairy milk or yogurt; or 1 cup lactose-free dairy milk or yogurt; or 1 cup of fortified soymilk or yogurt; or 1 ½ ounces of hard cheese.
6. Limits are:
    a. Added sugars to less than 55g a day.
    b. Saturated fat to less than 24g a day.
    c. Sodium to less than 2,300mg a day.

7. Activity:
    a. Adults should be physically active at least 2 ½ hours per week.
8. Water Intake:
    a. Adults should drink 4 to 6 cups of water per day.
        i. If exercising, increase the amount of water by 7 to 10 ounces every 10 to 20 minutes of exercising.
        ii. Drink 8 ounces of water no more than 30 minutes after exercising.

XVII. Additional Nutritional Counseling and Goals

- There was a slight change/improvement previously designed for the client when it comes to the number of calories daily ingested by the patient.
    - A reduction of approximately 500 less calories were achieved.
- 3 NEW GOALS TO FOCUS ON:
    1. Diet
        - Continue to follow the recommended amount of fruits, vegetables and grains.
        - Need to reduce the amount of carbohydrate exposures in liquid and solid forms.
    2. Hydration
        - This is the client's most difficult goal to achieve and adding at least 4 cups of water a day is a great plan in order to hopefully be able to increase to 6 cups of water a day while simultaneously reducing the amount of coffee and tea consumed daily.

3. Exercise
    - Patient claims that it is difficult to add even 30 minutes of exercise a week due to the fact that she had to obtain a second job in the middle of the project due to financial reasons.

- Specific and Realistic Recommendations for The Client:
    - Drink water and exercise.
    - As mentioned before, any amount of exercise is better than none, and drinking a couple of cups of water a day is better than drinking zero.

XVIII. Nutrition-based Recommendation Letter and OHI/Nutrition Pamphlet

Dear Patient, M.W.,

Thank you for being part of our Risk Assessment Project and assisting me with my education. We appreciate the time you have dedicated to show up on time as well as filling out the Dietary Forms and the Consent Forms. For your reference, here are the Oral Hygiene Instructions that we went over:

- Brush your teeth twice daily with the electric toothbrush that was provided to you.
    - Continue practicing the modified bass technique.
    - In case you're no longer happy with this product, we can always try something new such as other electric toothbrush brands or go back to manual toothbrushes (soft bristles always preferred).
        - Just ask for a "goodie baggie", otherwise I will always remind you that this tool is available at your disposal.
- Floss by utilizing a conventional dental floss.
    - Keep on practicing the spool flossing method.
    - As always, you are more than free to try other flossing products.
        - The dental water jet provided to you should be an addition to your regular daily floss.
- Always use toothpastes that contains fluoride in order to prevent dental caries and strengthen the enamel.
    - Use desensitizing agents, fillings, or sealants to reduce sensitivity and pain in case it arises.
- Continue to benefit from the fluoride varnish that is provided to you around three to four times a year.
    - This acts as a catalyst to speed up the natural remineralization process of your teeth.
        - It is simple and easy for me to apply it.
        - Just remember to not brush your teeth for at least two hours after treatment, as well as eating soft food diet for the day.
    - It is normal to feel that your teeth are sticky after professional fluoride treatment.
- The use of mouthwash promotes better breath, reduces plaque and gingivitis, as well as fight tooth decay and prevent cavities.
    - Mouthwashes and chewing gums with xylitol controls dry mouth in case it arises.
    - However, if you have been clutching and grinding for long periods of time, perhaps it is best if you avoid chewing gums for a while.
        - May choose to use mouthwashes with xylitol and/or sorbitol instead to promote salivary flow and control dry mouth.
- Sodium fluoride mouthwash also is an anticavity product.

Reminder:

- ❑ It's also very important to carry on taking good care of your teeth after receiving dental therapeutic treatment, in order to prevent any disease and plaque biofilm from getting worse.

- ❑ Let's keep your maintenance intervals every 6 months. You can do it!

- ❑ The frequency of your radiographs should be every 3 years, but may be done earlier in order to keep track of incipient decay.

    ❑ However, if dental/head pain arises, we can still take radiographs to look closely and see what is going on.

Our aim is to encourage you and provide positive results towards your nutritional journey as well. Below are some of the recommendations that are based on your personal nutritional analysis of the two sets of 3-Day Dietary Diaries provided by you.

- Your BMI by MyPlate Plan states that you are currently overweight with a 29.0 Body Mass Index.
    - Even though the circumstances of life may lead to a more sedentary lifestyle, it is my goal to ensure that you receive quality and accurate case based on your particular needs.
        - This will ultimately increase your longevity.
- Try taking small steps as opposed to sudden drastic changes to your lifestyle.
- Limit the consumption of carbohydrates, especially the ones that in the liquid form such as specialty coffees.
    - Instead, try snacking smart by incorporation more servings of fruits and vegetables into your diet.

Please take my suggestions as a guide to a healthier life that promotes health and prevents/avoids disease. In addition, based on your current needs and goals, a nutrition recommendation would be to:

- Be physically active at least 2 ½ hours per week.
- Consume 4 to 6 cups of water a day.

Even though these goals seem easy to achieve at first, it is important to be realistic and remember that there are many obstacles during the week that may prevent you from achieving these goals such as stress, lack of time, fatigue from working two jobs and other factors that may negatively impact your success.

♦ Everyday counts, and do not let setbacks compromise your long-term health goals ♦

The Eight Human Needs Conceptual Model guarantees your right to:

1. Be protected from health risks.
2. Be free from fear and stress.
3. Be free of pain.
4. Obtain a wholesome facial image.
5. Keep skin and mucous membrane integrity of head and neck.
6. Have biologically sound and functional dentition.
7. Have access to conceptualization and problem solving.

8. Be responsible for your own oral health.

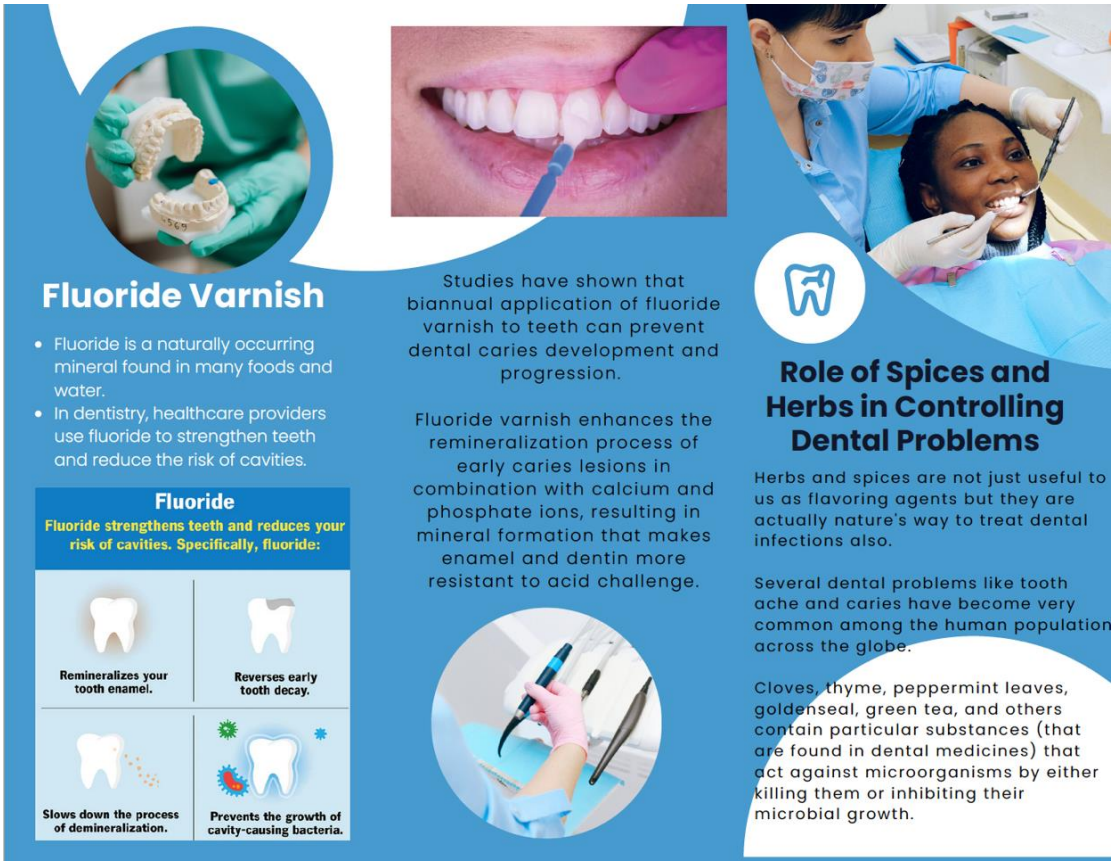
Your success is my success, and it is my responsibility as a healthcare provider to ensure that you are free of pain, fear and stress. It is understandable that dental professionals may ask questions regarding your diet and overall health, and this occurs because we as a team are committed to providing you a comprehensive health evaluation that benefits you as a whole, not just your oral cavity.

Moreover, many systemic issues can be related to oral health, so always remember that the same blood that is currently traveling in your gums will eventually reach other parts of your body such as your heart, cardiovascular system, renal structures and others. Please always refer to the list above regarding your Oral Hygiene Instructions for your own benefit and guidance.

As always, if you have any questions feel free to contact the office at your earliest convenience. We wish you good luck in your endeavors as you work hard to achieve healthier goals in life.

Sincerely,
Bruna Rett
Dental Hygiene Clinic
West Los Angeles College

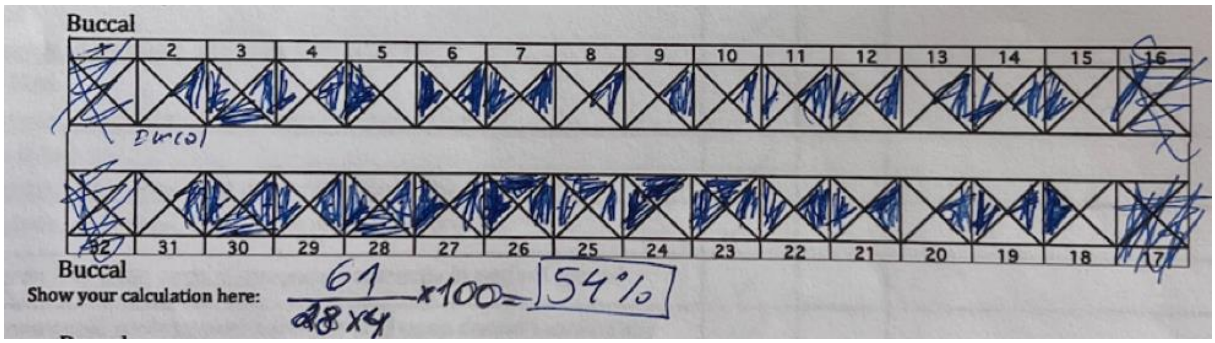

The search for alternative products continues and herbs and spices that were used as traditional medicines in the ancient times are considered as good alternatives.
Understanding the role of herbs and spices in controlling dental infections can help people cure and prevent infections in a natural way and help them overcome various dental problems.
WARNING!
The use of spices and herbs in combination with certain medications or medical conditions such as heart disease, diabetes and others may impact/alter the efficacy of such medications.
Always consult your healthcare provider before using dietary and/or herbal substances, especially if you're already taking other medications.
Your Health is Your Upmost Priority!
REFERENCES
Nguyen, Tonmukayakul, U., Warren, E., Cartwright, S., & Liew, D. (2020). A Markov cost-effective analysis of biannual fluoride varnish for preventing dental caries in permanent teeth over a 70-year time horizon. Health Promotion Journal of Australia, 31(2), 177–183. https://doi.org/10.1002/hpja.283
Shankar, P., G., & E., R. (2022). Role of Spices and Herbs in Controlling Dental Problems. Research Journal of Pharmacology and Pharmacodynamics, 14(1), 23–28. https://doi.org/10.52711/2321-5836.2022.00004
PREVENTIVE DENTISTRY AND NUTRITION
A Guide to a Healthier and Happier Oral Health


Fluoride Varnish
Fluoride is a naturally occurring mineral found in many foods and water.
In dentistry, healthcare providers use fluoride to strengthen teeth and reduce the risk of cavities.
Fluoride
Fluoride strengthens teeth and reduces your risk of cavities. Specifically, fluoride:
Remineralizes your tooth enamel.
Reverses early tooth decay.
Slows down the process of demineralization.
Prevents the growth of cavity-causing bacteria.
Studies have shown that biannual application of fluoride varnish to teeth can prevent dental caries development and progression.
Fluoride varnish enhances the remineralization process of early caries lesions in combination with calcium and phosphate ions, resulting in mineral formation that makes enamel and dentin more resistant to acid challenge.
Role of Spices and Herbs in Controlling Dental Problems
Herbs and spices are not just useful to us as flavoring agents but they are actually nature's way to treat dental infections also.
Several dental problems like tooth ache and caries have become very common among the human population across the globe.
Cloves, thyme, peppermint leaves, goldenseal, green tea, and others contain particular substances (that are found in dental medicines) that act against microorganisms by either killing them or inhibiting their microbial growth.

XIX. Oral Hygiene Evaluation and Fluoride Analysis

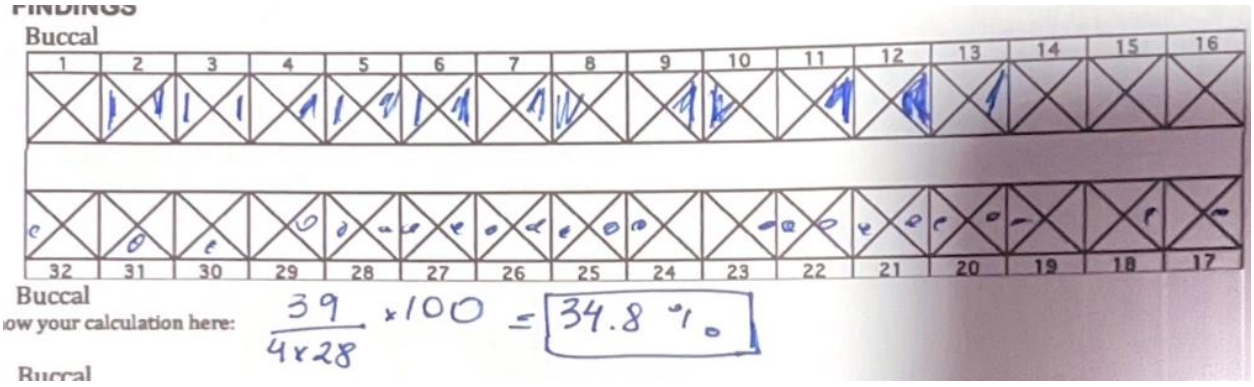
1. Plaque Control Record Index

- The Plaque Control Record (PCR) is a quantitative measurement of the amount of biofilm that is observed upon disclosing a purple solution.
- Pre-Treatment PCR result for this patient is 54%.



- This means that more than half of the client's mouth contains plaque bacteria that are aerobic and anaerobic.
  - Client is aware of current situation and was shown with a mirror the colored areas.
- Moderate to heavy biofilm deposit was found on the lingual and interproximal aspects of the lower anterior sextant.
  - Patient presents with crowding in those areas.

- Post-Treatment PCR



- This means that the patient was able to successfully achieve biofilm and plaque production by reducing her accumulation by approximately 25.2%.
    - When compared to the 60% recorded by the instructor (see Appendix 8).

2. MBI
    - The Marginal Bleeding Index is a measurement taken by sweeping the probe along the sulcus from interproximal to interproximal surfaces (buccal/facial or lingual) in one quadrant.
    - Pre-Treatment MBI result is 0.9%.
    - Post treatment MBI was zero.

3. Oral hygiene Skill Level
    - The patient's initial oral hygiene and skill levels were fair.
        - However, patient had difficulties flossing and brushing teeth #23 and #24 due to crowding that led to heavy biofilm accumulation on the lingual aspect.
        - Oral hygiene instructions were giving to use C-shape concept.
    - The patient uses Sensodyne toothpaste twice a day (morning and night).
    - The client uses modified bass brushing method.
    - The client uses a C shape flossing technique method.

4. Patient's Knowledge Level
    - The patient's awareness of dental and periodontal diseases was basic.
        - Client is aware that sweets, sodas and candies lead to cavities.

    - Client is aware of the importance of brushing and flossing, however, did not floss properly.
- By the Re-Evaluation appointment, the patient's knowledge about home oral hygiene care had expanded significantly and now really understands the importance of having good hygiene care and nutrition.

5. Current Usage of Fluoride
    - The patient did not use mouthwash with fluoride but did use toothpaste with fluoride.
        - However, the client started utilizing Listerine Total Care Anticavity Fluoride Mouthwash with active ingredient sodium fluoride.
    - Client was not aware of the benefits of using professional fluoride varnish.
    - The fluoride concentration of water in the patient's city according to Westlake Village is 0.8mg/L.
        - *Moderate* drinking water fluoride level.
            - *Fluoride*. California Water Service https://www.calwater.com/waterquality/fluoride/

6. Identification and Rationale of Fluoride Focus
    - Focusing in fluoride treatment was one of the main goals of periodontal therapy.
    - Client is at high risk for caries and currently have incipient caries in multiple areas.
    - Fluoride products promote cosmetic, hygiene and therapeutic factors.

- It helps removing food debris, dental plaque and extrinsic stains.
- It prevents the formation of supragingival calculus.
- It reduces the risks for caries, sensitivity and gingivitis.

- Fluoride rationale benefits focus on the remineralization process in which fluoride acts as a catalyst that speeds up the enamel strengthening mechanism of the teeth.

XX. CAMBRA Analysis

1. Annotation of CAMBRA Assessment

   - Please see Appendix 10 for photo record of CAMBRA assessment.

2. Recommendations based on patient's need.

   - Brushing twice daily with soft bristle toothbrush along with fluoridated toothpaste and mouthwash.
     - Soft bristles are the least abrasive, hence preventing damage to the tooth surfaces when compared with hard bristles.
     - Fluoridated products aids in stain removal, it prevents dental plaque biofilm accumulation as well as the formation of supragingival calculus.

3. Education and written information on caries control and management

   - Tooth decay is caused by certain types of anaerobic bacteria that do not need oxygen to survive.
   - Dental plaque occurs when these bacteria attach themselves to the teeth, causing damage.

- Bacteria feeds off of what we eat, especially starch and sugars.
    - This process happens very fast, usually within 5 minutes after eating and drinking, the bacteria starts to produce acid as a by-product of the bacteria's own digestion.
- These acids are harmful and can penetrate the enamel and dissolve minerals such as calcium and phosphate, which is basically what your teeth is composed of.
- Saliva has the role of repairing the damage that is caused by this acidic environment.
    - It neutralizes acids as well as providing fluoride and minerals that can replace the loss caused by bacteria.
- The start of tooth decay gingivitis mainly includes:
    - Dry mouth.
    - Frequently snacking unhealthy foods.

4. Caries risk prognosis and its rational

- The patient presents with moderate caries risk and prognosis.
    - This is due to the fact that the patient did not have generalized plaque/calculus and no visible cavitations.
    - Client presents with localized plaque/calculus, but still has some deep pits/fissures, as well as radiographic lesions such as incipient caries and snacks a lot.
    - Ultimately, the patient presents with adequate periodontal support, easy maintenance and compliance.

XXI. Oral Hygiene Instruction and Plan

1. Oral hygiene instruction provided and rationale for each component.

- Since the patient is classified as having moderate to high dental caries risk, the oral hygiene instructions are:
    - Daily high concentration of fluoride in products such as mouthwash, toothpaste and fluoridated water.
    - Brush once in the morning to reduce plaque biofilm that has been forming overnight.
    - Brush once at night to reduce plaque biofilm that has been accumulated throughout the day.
    - Avoid carbohydrates, starch and acidic foods before bed to reduce bacterial activity that occurs overnight.
    - Floss once a day by using the C shape method and water jet.
        - Patient's dexterity is excellent, and she is able to floss the proper way now.

2. How does design address patient's needs?

- The patient's needs is to be free of disease while simultaneously keeping the gingivitis status and preventing from moving to periodontists.
- To avoid periodontal pockets from increasing, as well as the appearance of CAL.
- Patient has a goal of home oral hygiene care and plaque biofilm control.

3. Goals developed with patient during OHI

- Morning and evening brushing with an electric toothbrush.
- Floss once a day with C-shape method.
- 6 months recall maintenance.

4. Smoking cessation program recommendations.

- Patient does not smoke.

5. Preventive recommendations

- Fluoride varnish professionally applied in the dental office every 3-6 months.
- Fluoridated products such as mouthwash and toothpaste to enhance tooth enamel remineralization, inhibit demineralization and plaque biofilm formation.
- Patient should get sealants on the maxillary molars and lower right.
    - Client only received a sealant on teeth #18 and #19.

6. Possible implications of systemic conditions.

- No possible implications of systemic conditions.

7. OHI modifications made during re-evaluation based on findings.

- Patient was given instructions to follow the electric toothbrush vibration of changing every 1 minute to a different quadrant.
    - Client would first brush the lingual side of the entire mandible instead of dividing the mouth into parts.

- Client appears excited about the results she has seen and is eager to continue oral home care.
- Reviewed OHI once again regarding brushing and flossing.

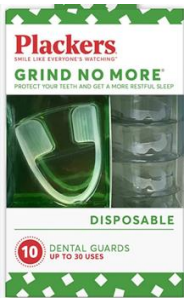
8. DDS referral, MD referral, and/or specialty referral

    - Per DDS upon patient's screening, no referrals are needed.
        - But monitor incipient caries in case condition worsen.

XXII. Discussion of Post-Clinical Reassessment Status (Assessment at Re-evaluation Appointment - Appointment #4)

1. E & I examination

    - Asymptomatic clicking of the left TMJ.
    - Continuous redness of the oropharyngeal arch due to seasonal allergies.
    - Right Molar: Class I.
    - Right Canine: Class I.
    - Left Molar: Class I.
    - Left Canine Class 1.
    - Facial profile is mesognathic.
    - Bilateral lingual mandibular tori.
    - Overbite: 2mm.
    - Overjet: 2 mm.
    - Maximum opening: 45mm.
    - No crossbite.
    - Nocturnal bruxism. Patient wears disposable OTC nightguard.



2. Evaluation of periodontal structures.

- Maxillary Attached Gingiva:
    - Color: pink.
    - Consistency: firm.
    - Texture: stippled.
- Maxillary Free Gingiva:
    - Color: pink.
    - Consistency: firm.
    - Texture: stippled.
    - Contour: scalloped.
- Mandibular Attached Gingiva:
    - Color: pink.
    - Consistency: firm.
    - Texture: stippled.
- Mandibular Free Gingiva:
    - Color: pink.
    - Consistency: firm.
    - Texture: stippled.
    - Contour: knife edged.

3. WLAC Calculus Code

- 2 Light.
    - After full mouth scaling, patient presents with some light supragingival and some subgingival calculus that is located on approximately 25% of interproximal surfaces.

4. Plaque index and photos of before and after disclosing.

- Please see Appendix 14.
- Since the case started at not severe (3 light medium), the re-evaluation of the left side within 10 days is ok, but if it was a very involved patient, then I'd need at least 4 weeks to re-eval.
- The reason why re-evaluation is done 4-6 weeks is because this is the amount of time that takes for connective tissue to heal.
    - Periodontal pockets will re-epithelialize in approximately one week.
- RAP dates summary:
    - 3/02 – Screening.
    - 3/17 – RAP #1
    - 3/25 – RAP #2
    - 3/28 – RAP #3
    - 4/24 – RAP #4 – Right side scaling
    - 5/13 – RAP#5 – Left side scaling
    - 5/23 – RAP Re-eval

XXIII. Oral Hygiene Reassessment and Nutrition Status (Assessment at Re-evaluation Appointment - Appointment #4)

1. Patient compliance with recommendations given (OHI, preventive, referrals)
    - Client was very compliant with OHI and preventive recommendations.
        - Patient is always thankful for tips given.

2. Patient compliance with recommended nutritional counseling.
    - Patient is aware of excess of carbohydrates.
    - Client used to follow her calories daily when dieting.

3. Additional modifications of nutritional counseling and new goals.
    - Patient has currently signed up to go to the gym and is feeling very excited to get back to it.
        - She states that is very difficult to work out from home and maintain a routine schedule

4. Additional modifications of oral hygiene goals and rationale.
    - Upon patient's demonstration of using an electric toothbrush, she showed that she did not follow quadrants, but did a random way of brushing.
    - Patient was instructed to brush each quadrant, all surfaces, until the toothbrush vibrates.

5. Post-treatment status and rationale.

- Post-treatment status is that the patient is in good condition and was able to move from a 3-light-medium to a light.
- This occurred because the client no longer has subgingival calculus on approximately 50% of the interproximal surfaces.
    - She now only has about 25%.
- Recommendation for X-ray is to get bitewings at least once a year to monitor the progression of incipient caries.

XXIV. Discussion (MUST BE COMPLETED IN AN ESSAY, RESEARCH WRITING FORMAT) (2-page minimum, 3-page maximum)

"Discussion of Overall Treatment and Results"

The overall treatment outcomes that were obtained at the end of the Risk Assessment Project are satisfactory since the patient tried to reduce her daily intake of carbohydrates. However, the patient is still struggling with committing to exercising at least 2 ½ hours a week. Cardiovascular aerobic exercises will aid in strengthening blood vessels elasticity and capacity to regulate blood flow. Muscle-strengthening exercises will aid with better balance and more toned muscles that are capable to withstand force. The patient would benefit greatly once she starts doing more physical activities, which will consequently lead to a better overall health, and finally improve oral health.

The client's understanding of the relationship and correlation between nutrition and oral disease were highly increased through her participation in this project. It was demonstrated to the patient that the oral cavity is part of overall health and the importance of acquiring good oral hygiene care in order to not only avoid plaque biofilm formation, but to also improve quality of life. In addition, it was emphasized to the client that drinking 4 to 6 glasses of water a day rather than obtaining most of her hydration through specialty coffees would benefit all organs of her body, leading to a better salivary flow and other systems such as cardiovascular, epithelial and others.

The Re-evaluation of the original treatment plan and assessment were made in order to accommodate the patient's financial need of obtaining a second job. It is difficult to maintain a dietary and physical health on a daily basis, especially if the individual's tasks are focused on sitting down in front of a computer all day writing down emails and answering phone calls. The

treatment plan could have been better provided for the patient if the Re-evaluation appointment was to be completed within the 4 to 6 weeks' time spam in order to permit tissue healing. However, some results were observed on the right side of the mouth since it was possible to Re-evaluate that area after 3 weeks of providing treatment. The left side of the mouth was evaluated only 10 days after mouth debriment was completed, but the tissue was still in the process of healing.

The Oral Hygiene Instructions and Nutritional Goals/Objectives were met due to the excellent patient compliance, along with the motivation that the client had once she saw the amazing results that comes with increased and proper oral hygiene homecare. Patient claims that her mouth feels cleaner after starting treatment in the West Los Angeles College clinic. When it comes to exercising and drinking enough water, the patient lacks immediate commitment but expresses the desire to improve her physical conditions overtime. In conclusion, making sure that the client is able to understand and perform specific oral home care that is directed to their specific needs is the key to achieving a successful periodontal therapy care.

XV. Conclusion (MUST BE COMPLETED IN AN ESSAY, RESEARCH WRITING FORMAT) (2-page minimum, 3-page maximum)

"Conclusion of Overall Treatment and Results"

The overall treatment for the client was mainly focused on providing additional periodontal therapy tools such as professional application of fluoride varnish, as well as giving oral hygiene instructions that focused mainly on utilizing products that contains fluoride such as toothpaste and mouthwash. This decision was made based on the fact that the patient presents with gingivitis and multiple incipient caries lesions in which the enamel would highly benefit from a catalyst for the remineralization process. An analysis of biannual fluoride varnish application for preventing dental caries in permeant teeth was made in Australia and determined that the application of such tool is a highly cost-effective strategy to prevent or slow down the caries process (Nguyen, Warren & Liew, 2020). Since the client is currently undergoing financial hardships, it was important to remind her that preventing dental disease is usually cheaper than having to remediate periodontal issues that are more often complicated if left untreated.

When it comes to patient compliance, the client seemed to be attentive and interested in learning more ways to better her oral health. It is crucial for the patient to be able to understand and demonstrate the oral hygiene instructions given to them in order to achieve successful results. The BMC Oral Health study on the relationship between oral health literacy and oral health status concluded that subjects with limited oral health literacy has poorer periodontal health (Baskaradoss, 2018). Furthermore, improving patient's knowledge of oral hygiene instructions will improve the client's adherence to medical instructions, self-management skills and the overall treatment outcomes.

A study done by the Journal of Dental Research explored the correlation between flossing and improved oral health. It was determined that the extent of oral disease is significantly less in individuals that floss and opposed to non-flossers (JDR, 2020). If the oral cavity is exposed to less factors that influence dental disease, it will consequently lead to fewer dental caries and loss of fewer teeth overtime. These findings are associated with the oral hygiene instructions given to the patient regarding the proper use of C-floss while using traditional dental flossers as an important tool to improve dental hygiene behavior as well as preventing the progression of oral diseases from gingivitis to periodontitis.

The prognosis for this patient is good due to adequate periodontal support, relatively easy maintenance and good patient compliance. The patient is strongly encouraged to use methods of controlling tooth decay such as reducing the number of sugary and starchy foods in the diet; utilizing fluoride sources that may come from dental products, city water or professionally applied; regular visits to the dental office in order to disrupt biofilm and continue plaque removal; and sealants for deep pits and fissures that may be at high risk for caries. In conclusion, the evidence-based science articles mentioned during this project is an additional tool that may be shown to the patient in order to motivate them and also show that dental hygiene professionals are not obtaining their knowledge from questionable sources. Providing trustworthy information to the patient is a right that they have and also an obligation from the healthcare provider to always be a continuous learner.

XXVI. Summary (MUST BE COMPLETED IN AN ESSAY FORMAT) (1-page maximum)

"Summary of Overall Treatment and Results"

My overall learning experience with the Risk Assessment Project was that I had to accept the fact that even though I tried hard for over three weeks to schedule my patient early as an attempt to have the Re-evaluation appointment done before the due date, I still was not able to turn in my assignment on time since my patient got a second job in the middle of the project due to financial hardship. However, I mentally prepared myself to not allow this fact to negatively impact the quality and efficacy of the dental hygiene services I provided to my patient. Ultimately, I learned that the patient's needs come in first and foremost before any deadline, performance evaluations or points deduction that may apply to my grade.

Two areas of strength in the clinical and nutritional assessment determined upon completion of this project is that patient compliance is key in determining a positive treatment outcome. If the patient is non-compliant, indifferent and passive as opposed to active when it comes to their own treatment, the only option left for me is to keep on trying to motivate the individual as much as possible. In addition, the client's hunger for knowledge, especially after seeing results, was one of the most important points for me personally. If the patient is unable to understand and utilize the information provided, then our work is diminished and undermined.

Two areas of weaknesses in clinical and nutritional assessment upon completion of this project is that the patient was not properly flossing by using the C-shaped method and she was somewhat apprehensive to try out electric toothbrushes. However, the client now feels that using a combination of regular flossing, water floss and electric toothbrush gave her the best and most satisfying results.

XXVII. References and Citations

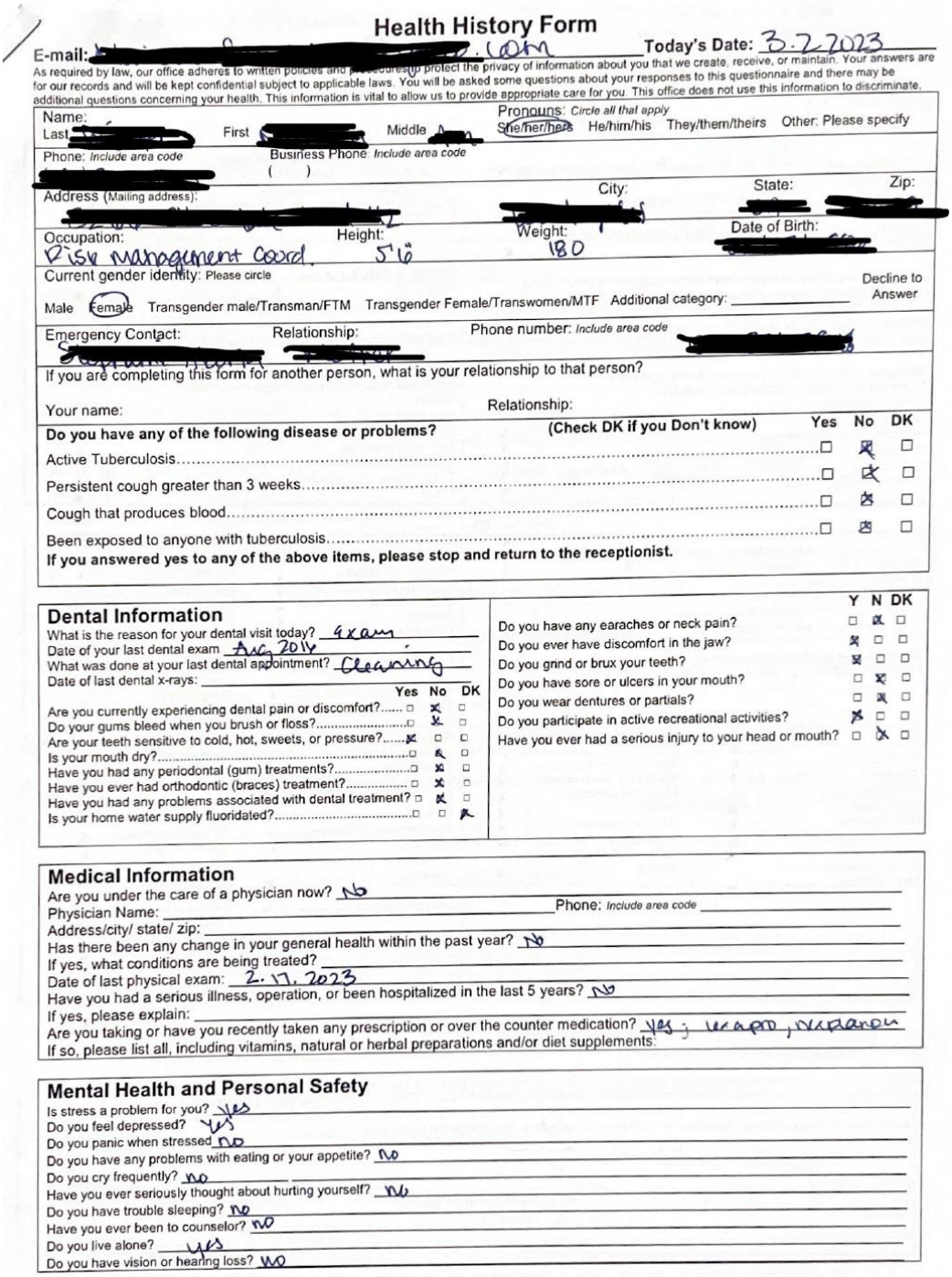
Baskaradoss. (2018). Relationship between oral health literacy and oral health status. BMC Oral Health, 18(1), 172–172. https://doi.org/10.1186/s12903-018-0640-1

Marchesan, Byrd, K. M., Moss, K., Preisser, J. S., Morelli, T., Zandona, A. F., Jiao, Y., & Beck, J. (2020). Flossing Is Associated with Improved Oral Health in Older Adults. Journal of Dental Research, 99(9), 1047–1053. https://doi.org/10.1177/0022034520916151

Nguyen, Tonmukayakul, U., Warren, E., Cartwright, S., & Liew, D. (2020). A Markov cost-effective analysis of biannual fluoride varnish for preventing dental caries in permanent teeth over a 70-year time horizon. Health Promotion Journal of Australia, 31(2), 177–183. https://doi.org/10.1002/hpja.283

XXVIII. Appendices*

1. Copy of the Health History form



Health History Form

E-mail: [redacted] Today's Date: 3.7.2023

As required by law, our office adheres to written policies and procedures to protect the privacy of information about you that we create, receive, or maintain. Your answers are for our records and will be kept confidential subject to applicable laws. You will be asked some questions about your responses to this questionnaire and there may be additional questions concerning your health. This information is vital to allow us to provide appropriate care for you. This office does not use this information to discriminate.

Name: Last [redacted] First [redacted] Middle [redacted]
Pronouns: *Circle all that apply* She/her/hers He/him/his They/them/theirs Other: Please specify

Phone: *Include area code* [redacted] Business Phone: *Include area code* ( )

Address (Mailing address): [redacted] City: [redacted] State: [redacted] Zip: [redacted]

Occupation: Risk management coord. Height: 5'6 Weight: 180 Date of Birth: [redacted]

Current gender identity: *Please circle*
Male Female Transgender male/Transman/FTM Transgender Female/Transwomen/MTF Additional category: _____ Decline to Answer

Emergency Contact: [redacted] Relationship: [redacted] Phone number: *Include area code* [redacted]

If you are completing this form for another person, what is your relationship to that person?

Your name: Relationship:

Do you have any of the following disease or problems? (Check DK if you Don't know)	Yes	No	DK
Active Tuberculosis	☐	☒	☐
Persistent cough greater than 3 weeks	☐	☒	☐
Cough that produces blood	☐	☒	☐
Been exposed to anyone with tuberculosis	☐	☒	☐

If you answered yes to any of the above items, please stop and return to the receptionist.

Dental Information

What is the reason for your dental visit today? exam
Date of your last dental exam Aug 2019
What was done at your last dental appointment? Cleaning
Date of last dental x-rays: _____

	Yes	No	DK
Are you currently experiencing dental pain or discomfort?	☐	☒	☐
Do your gums bleed when you brush or floss?	☐	☒	☐
Are your teeth sensitive to cold, hot, sweets, or pressure?	☒	☐	☐
Is your mouth dry?	☐	☒	☐
Have you had any periodontal (gum) treatments?	☐	☒	☐
Have you ever had orthodontic (braces) treatment?	☐	☒	☐
Have you had any problems associated with dental treatment?	☐	☒	☐
Is your home water supply fluoridated?	☐	☐	☒

	Y	N	DK
Do you have any earaches or neck pain?	☐	☒	☐
Do you ever have discomfort in the jaw?	☒	☐	☐
Do you grind or brux your teeth?	☒	☐	☐
Do you have sore or ulcers in your mouth?	☐	☒	☐
Do you wear dentures or partials?	☐	☒	☐
Do you participate in active recreational activities?	☒	☐	☐
Have you ever had a serious injury to your head or mouth?	☐	☒	☐

Medical Information

Are you under the care of a physician now? No
Physician Name: _____ Phone: *Include area code* _____
Address/city/ state/ zip: _____
Has there been any change in your general health within the past year? No
If yes, what conditions are being treated? _____
Date of last physical exam: 2.17.2023
Have you had a serious illness, operation, or been hospitalized in the last 5 years? No
If yes, please explain: _____
Are you taking or have you recently taken any prescription or over the counter medication? Yes; Lexapro, Wellbutrin
If so, please list all, including vitamins, natural or herbal preparations and/or diet supplements:

Mental Health and Personal Safety

Is stress a problem for you? Yes
Do you feel depressed? Yes
Do you panic when stressed No
Do you have any problems with eating or your appetite? No
Do you cry frequently? No
Have you ever seriously thought about hurting yourself? No
Do you have trouble sleeping? No
Have you ever been to counselor? No
Do you live alone? Yes
Do you have vision or hearing loss? No

Physical and/or mental abuse have also become major public health issues in this country. This often takes the form of verbally threatening behavior or actual physical or sexual abuse. Would you like to discuss this issue with your provider? NO

Medical Information

Please mark (X) your response to indicate if you have not had any of the following diseases or problems

	Yes	No	DK
Do you wear contact lenses?	X		
Joint replacement. Have you had an orthopedic total joint replacement (hip, knew, finger)? If yes, Date: _____ If yes, any complications? _____			
Are you taking or scheduled to begin taking an antiresorptive agent (like Fosamax, Actonel, Atelvia, Boniva, Reclast, Prolia) for osteoporosis or Paget's disease?		X	
Since 2001, were you treated or are you presently scheduled to begin treatment with an antiresorptive agent (like Aredia, Zometa, XGEVA) for bone pain, hypercalcemia or skeletal complications resulting from Paget's disease, multiple myeloma or metastatic cancers? Date Treatment began: _____			

Allergies. Are you allergic to or have had a reaction to:
To all **yes** responses, specify type of reaction.

	Yes	No	DK
Local anesthetics		X	
Aspirin		X	
Penicillin or other antibiotics		X	
Barbiturates, sedatives, or sleeping pills		X	
Sulfa drugs		X	
Codeine or other narcotics		X	

Please mark (X) your response to indicate if you have not had any of the following diseases or problems

	Yes	No	DK
Artificial (prosthetic) heart valve		X	
Previous infective endocarditis		X	
Damaged valves in transplanted heart		X	
Congenital heart disease (CHD)			
Unrepaired, cyanotic CHD		X	
Repaired (completely) in last 6 months		X	
Repaired CHD with residual defects		X	

Except for the conditions listed above, antibiotic prophylaxis is no longer recommended for any other form of CHD

	Yes	No	DK		Yes	No	DK
Cardiovascular disease		X		Mitral valve prolapse		X	
Angina		X		Pacemaker		X	
Arteriosclerosis		X		Rheumatic fever		X	
Congestive heart failure		X		Rheumatic heart disease		X	
Damaged heart valves		X		Abnormal bleeding		X	
Heart attack		X		Anemia		X	
Heart murmur		X		Blood transfusion		X	
Low blood pressure		X		Hemophilia		X	
High blood pressure		X		AIDS or HIV infection		X	
Other congenital heart defects		X		Arthritis		X	

	Yes	No	DK
Do you use controlled substances (drugs)?		X	
Do you use tobacco (smoking, snuff, chew, bidis)?		X	
If so, how interested are you in stopping? Circle one: VERY / SOMEWHAT / NOT INTERESTED			
Do you drink alcoholic beverages?	X		
If yes, how much alcohol did you drink in the last 24 hours? 0			
If yes, how much do you typically drink in a week? 1-2			

WOMEN ONLY Are you:

	Yes	No	DK
Pregnant?		X	
Number of weeks: _____			
Taking birth control pills or hormonal replacement?	X		
Nursing?		X	

Allergies. Are you allergic to or have had a reaction to:
To all **yes** responses, specify type of reaction.

	Yes	No	DK
Metals		X	
Latex(rubber)		X	
Iodine		X	
Hay fever/seasonal		X	
Animals		X	
Food		X	
Other		X	

Please mark (X) your response to indicate if you have not had any of the following diseases or problems

	Yes	No	DK		Yes	No	DK
Autoimmune disease		X		Glaucoma		X	
Rheumatoid arthritis		X		Hepatitis, jaundice or liver disease		X	
Systemic lupus erythematosus		X		Epilepsy		X	
Asthma		X		Fainting spells or seizures		X	
Bronchitis		X		Neurological disorders		X	
Emphysema		X		If yes, specify			
Sinus trouble		X		Sleep disorder		X	
Tuberculosis		X		Do you snore?			
Cancer/Chemotherapy/		X		Mental health disorders ,Specify : Depression	X		
Radiation Treatment		X		Recurrent Infections		X	
Chest pain upon exertion		X		Type of infection		X	
Chronic pain		X		Kidney problems		X	
Diabetes Type I or II		X		Night sweats		X	
Eating disorder		X		Osteoporosis		X	
Malnutrition		X		Persistent swollen glands in neck		X	
Gastrointestinal disease		X					
G.E. Reflux/ persistent heartburn		X		Severe headaches migraines		X	
Ulcers		X		Severe or rapid Weight loss		X	
Thyroid problems		X		STDs		X	
Stroke		X		Excessive urination		X	

Has a physician or previous dentist recommended that you take antibiotics prior to your dental treatment? X

Name of physician or dentist making recommendation: Phone number include area code ( )

Do you have any disease, condition, or problem not listed above that you think I should know about? X

Please, explain:

NOTE: Both doctor and patient are encouraged to discuss any and all relevant patient health issues prior to treatment.

2. Copy of the WLAC Dental Hygiene Clinic - Terms of Treatment and Consent Form

WLAC DENTAL HYGIENE CLINIC

TERMS OF TREATMENT AND CONSENT FORM

GENERAL INFORMATION: The West Los Angeles College Dental Hygiene Clinic is primarily a teaching clinic, and therefore clients receiving dental hygiene care will be participating in the teaching program. Clients will be selected only if they are considered suitable as teaching cases. Treatment will be performed by a dental hygiene student and will be supervised by members of the West Los Angeles College Faculty. Treatment under supervision generally requires more time than if done in a private practice and each appointment will be approximately three hours in length. The completion of the service will be dependent on the clinic and clinician's availability and it may take longer time than expected. Also, it is possible that faculty may direct a student to redo a procedure as necessary to comply with the standard of care in dentistry. *The West Los Angeles College Dental Hygiene Clinic is not a substitute for a regular visit to your dentist. It is recommended that all clients seek dental care between visits at West Los Angeles College*. In certain cases, treatment in the Dental Hygiene Clinic may be refused until the client's dentist provides treatment.

ELIGIBILITY TO BECOME A CLIENT: Only clients whose care is suitable for teaching purposes are eligible for care in the West Los Angeles College Clinic (WLAC). Patients are selected with very specific criteria and not all may qualify. New clients require an initial evaluation or assessment appointment to determine if they are eligible. Clients are required to provide a valid photo I.D. and complete a medical history form. Clients not offered dental hygiene treatment in the WLAC will be referred for treatment to their dentists, to a dental school clinical program, or, if they have no dentist, to the local non-profit community dental clinics. Some clients may initially qualify for treatment and later, after initial therapy is completed, may no longer be considered appropriate as teaching cases; in this case, services will be discontinued and the client will be referred to his/her dentist. If you are selected, you will be assigned to a dental hygiene student who will make future appointments and you will be given further instructions regarding the process. A signed consent form is required prior to the start of any dental hygiene service.

CLIENT ACCEPTABILITY: The client must be free from any medical and dental conditions which would make treatment hazardous to client or clinician. The client's health condition must be acceptable for student treatment. If conditions indicate a need to consult the client's physician, the client must obtain the necessary written clearance and/or evidence of pre-medication before the client will be accepted.

KEEPING YOUR APPOINTMENTS: You are required to be on time for your appointments. If you find that you are unable to keep an appointment, you agree to notify the dental hygiene student or the Dental Hygiene Clinic office at least 24 hours in advance. A total of TWO cancellations without 24 hours notice, two missed appointments, or repeated unsuccessful attempts to arrange for an appointment may be cause for discontinuation of further treatment in the Dental Hygiene Clinic.

FINANCIAL RESPONSIBILITY: Clients who receive treatment in the Dental Hygiene Clinic will be charged for treatment according to the current fee schedule in effect. A fee estimate will be provided prior to the beginning treatment and clients must be prepared to pay for services at the start of treatment. WLAC Dental Clinic is not accepting any insurance claims or Denti-Cal Insurance.

PATIENT BILL OF RIGHTS:

Patients accepted into the dental hygiene clinic have rights to the following:

- Be treated with courtesy, respect, and confidentiality.
- Be treated without discrimination based on race, color, national origin, sex, sexual orientation, age, or disability.
- Expect treatment that meets the standard of care in dental hygiene including the use of appropriate infection controls.
- Give informed consent prior to the initiation of treatment.
- Participate in decisions regarding their dental hygiene treatment after receiving an explanation of recommended treatment, treatment alternatives, risks and expected outcomes.
- Have a thorough examination and assessment of their oral health needs.
- Expect reasonable continuity of care and completion of treatment in a safe, clean healthcare setting.
- Be referred for other needed treatment which will promote wellness.
- Be informed of the fee schedule and appointments.

ORAL HEALTH SERVICES PROVIDED: The dental hygiene clinic provides the following oral health services. Treatment options are limited to what is described below.

**We strongly recommend that you obtain a comprehensive examination, diagnosis and treatment from a licensed dentist, dental clinic or school.*

- Initial oral screenings
- Medical assessment and vital signs
- Dental Radiographs
- Extraoral and intraoral examination
- Dental and periodontal assessment
- Scaling, root planing, and coronal polishing
- Fluoride treatment
- Sealant placement
- Local delivery of antimicrobial agents for the treatment of periodontal disease
- Nutritional Counseling
- Assistance with tobacco cessation
- Interim Therapeutic Restorations
- Referral to specialist

SIDE EFFECTS AND RISKS: There are potential side effects or risks for any treatment. These risks include, but are not limited to, the following:

- Bleeding of the gums following treatment.
- Swelling of the face, discoloration, pain or jaw stiffness.
- Injury to adjacent teeth, tissue, or fillings.
- Numbness, tingling, or pain of the lip, cheek, chin, gums, teeth, and tongue.
- Temporary rapid heartbeat or faintness.
- Severe allergic reaction to the anesthetic requiring emergency treatment
- Biting your lip or tongue while still numb.
- Temporary nausea if fluoride is swallowed.

CONSENT TO DENTAL HYGIENE PROCEDURES: Before receiving treatment, you should ask the dental hygiene student about the procedure(s) that he/she recommends you undergo, and ask any questions you may have before you decide whether to give your consent for the procedure(s) to be done. You have the right to be informed of any risks and complications, the expected benefit, and the availability of alternative methods of treatment. All dental procedures may involve risks or unsuccessful results and complications, and no guarantee is made as to any result or cure. You have the right to consent or to refuse any proposed procedure at any time prior to its performance. However, refusal to consent to proposed procedures may cause you to be considered an inappropriate teaching case. Conversely, WLAC Dental Clinic reserves the right to refuse to render specific treatment if it does not meet the prevailing standard of dental care.

CONSENT FOR PHOTOGRAPHY: Clinicians may take patient photographs to document clinical conditions, examination findings and/or for teaching purposes. The photographs may be used for educational and research purposes without publication of the name of the client.

DENTAL RECORDS: The records, x-rays, photographs, models, and other materials relating to treatment in the Dental Hygiene clinic are the property of the Dental Hygiene Clinic. Client has the right to inspect such materials and to request copies. All request for copies must be made in writing. Dental/medical records maybe used for instructional purposes and if they are, the client's identity will not be disclosed to individuals not involved in their care and treatment.

RADIOGRAPHS: Dental radiographs will be taken as necessary and appropriate for examinations, diagnosis, consults and treatment. You may submit current (taken within twelve months), diagnostic-quality radiographs taken at a non-WLAC clinic for inclusion in your WLAC dental records. However, we require multiple copies. If the radiographs' quality is non-diagnostic or cannot be satisfactorily duplicated, we may need to take more radiographs. *Only a limited evaluation of radiographs will be performed and any findings need to be followed up with a thorough evaluation by a dentist.*

AUTHORIZATION: By signing this form, I acknowledge that I would like to have a screening done by a WLAC Dental Hygiene student to see if I qualify as a patient for their needs. This screening is being held to select patients who may qualify for a specific type of dental cleaning, preventive services, limited restorative treatment, and other projects for the dental hygiene clinical courses.

If I am accepted as a patient, I hereby authorize the students and faculty members of the WLAC Department of Dental Hygiene to provide any recommended preventive, dental hygiene and restorative services. I have been informed about benefits and risks of the oral health services that will be provided. I was able to ask questions and have all my questions answered. I authorize the review and reproduction of my dental chart and all photographs taken of me, solely for educational purposes, without compensation to me.

I have read and I understand the information provided on this form, I have received a copy, and I am consenting to all aspects of treatment under the described terms and conditions.

I hereby give permission for messages to be left on my answering machine:

- ☐ At home
- ☑ On my cell phone
- ☐ At my place of employment
- ☐ None

Do we have permission to discuss your medical/dental condition with family?

- ☑ Yes
- ☐ No

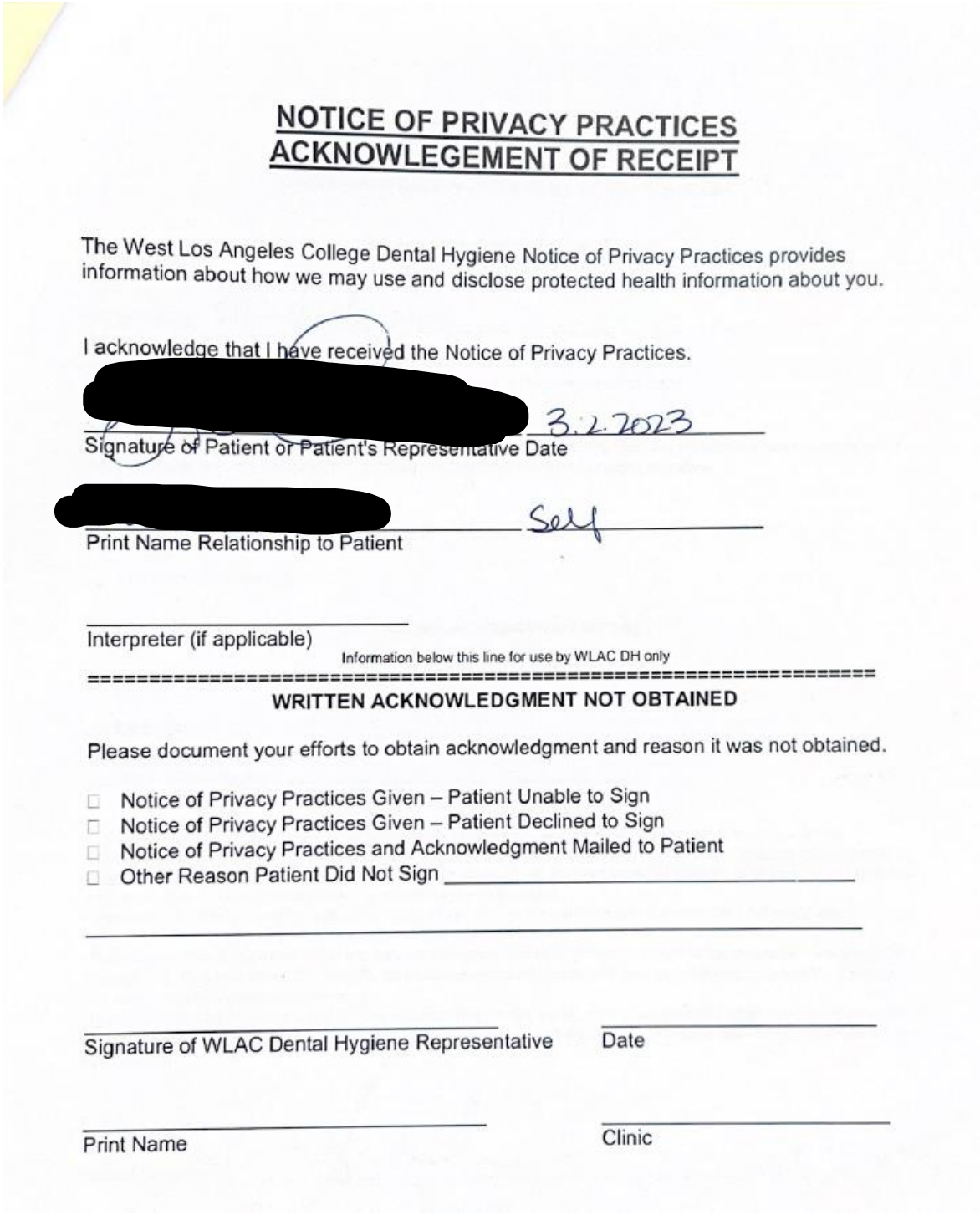
[redacted] _____ [redacted] _____ 3.7.2023

Client Name (Print) *Client Signature* *Date*

If signed by other than the client, indicate relationship: _____

(i.e. parent/guardian/conservator)

3. Copy of the Notice of Privacy Practices - Acknowledgement of Receipt



NOTICE OF PRIVACY PRACTICES
ACKNOWLEGEMENT OF RECEIPT

The West Los Angeles College Dental Hygiene Notice of Privacy Practices provides information about how we may use and disclose protected health information about you.

I acknowledge that I have received the Notice of Privacy Practices.

[redacted] 3.2.2023
Signature of Patient or Patient's Representative Date

[redacted] Self
Print Name Relationship to Patient

Interpreter (if applicable)

Information below this line for use by WLAC DH only

==========

WRITTEN ACKNOWLEDGMENT NOT OBTAINED

Please document your efforts to obtain acknowledgment and reason it was not obtained.

- ☐ Notice of Privacy Practices Given – Patient Unable to Sign
- ☐ Notice of Privacy Practices Given – Patient Declined to Sign
- ☐ Notice of Privacy Practices and Acknowledgment Mailed to Patient
- ☐ Other Reason Patient Did Not Sign _____

Signature of WLAC Dental Hygiene Representative

Date

Print Name

Clinic

4. Copy of the WLAC Dental Hygiene Clinic - Radiograph Prescription Form

West Los Angeles College
Dental Hygiene Department – Dental Assisting Department

Radiograph Prescription Form

Patient Name: [redacted]

Student Name: Bruna [redacted]

The students of the West Los Angeles College Dental Hygiene and Dental Assisting Programs are providing dental radiography for the purpose of limited diagnosis/treatment planning and dental hygiene/dental assisting education.

The following radiographs have been prescribed by a dentist for the above named patient:

___ 4 Horizontal Bitewings

___ 4 Horizontal Bitewings & 2 PAs (Maxillary and mandibular centrals)

X Full Mouth Series

___ Panoramic

___ Single Radiographs: _____

- I, the above named patient, consent to the recommended treatment to be completed by the radiology student under the supervision of licensed dental assistants, hygienists and/or dentists. The procedure, benefits, and risks (*including, but not limited to: low dose radiation*) have been described to me. I have been informed that appointment times may take up to three hours. I have had the opportunity to ask questions and all my questions have been answered.
- In general, I feel that I am in good health for this procedure. I am not currently pregnant. I have not had a full-mouth series of X-rays within the past three years, and/or bitewing X-rays within the past six months.
- I have been informed that only a limited evaluation of radiographs will be performed and any findings need to be followed up with a thorough evaluation by a dentist. Occasionally, the treatment is not sufficient and the procedure will need to be re-done or patient may need to return for additional procedures.
- I understand that the X-rays are part of the original dental records that belong to West Los Angeles College Department of Dental Hygiene. I authorize and request the release of x-rays taken of me to myself. Patients 16 -17 years of age must be accompanied by a legal guardian.

Patient Signature: [redacted] Date: 3.2.2023

Student Signature: [redacted] Date: 3/2/23

Dentist Signature: [redacted] Date: 3|2|2023

5. Copy of the WLAC Dental Hygiene Clinic - Charting and Tx Plan Worksheet

WLAC Dental Hygiene Department – Charting and Tx Plan Worksheet

Patient Name [redacted] DOB [redacted]

Intake Student Bruna Reff Student Number [redacted] Today's Date 03/02/23

1. Ask the patient if they are experiencing any pain or discomfort in any teeth.
2. Identify missing teeth using radiographs and mark "X" on the tooth number. (Clinically invisible teeth, mark "I").
3. Check mark the tooth with pain.
4. Identify existing restorations (Amalgam filling, Composite Filling, Crowns, & Implant etc.)
5. Identify any possible caries or conditions that need dentist's attention (Possible Caries, stains, deep pits, & Fractures)

Charting and Tx Plan

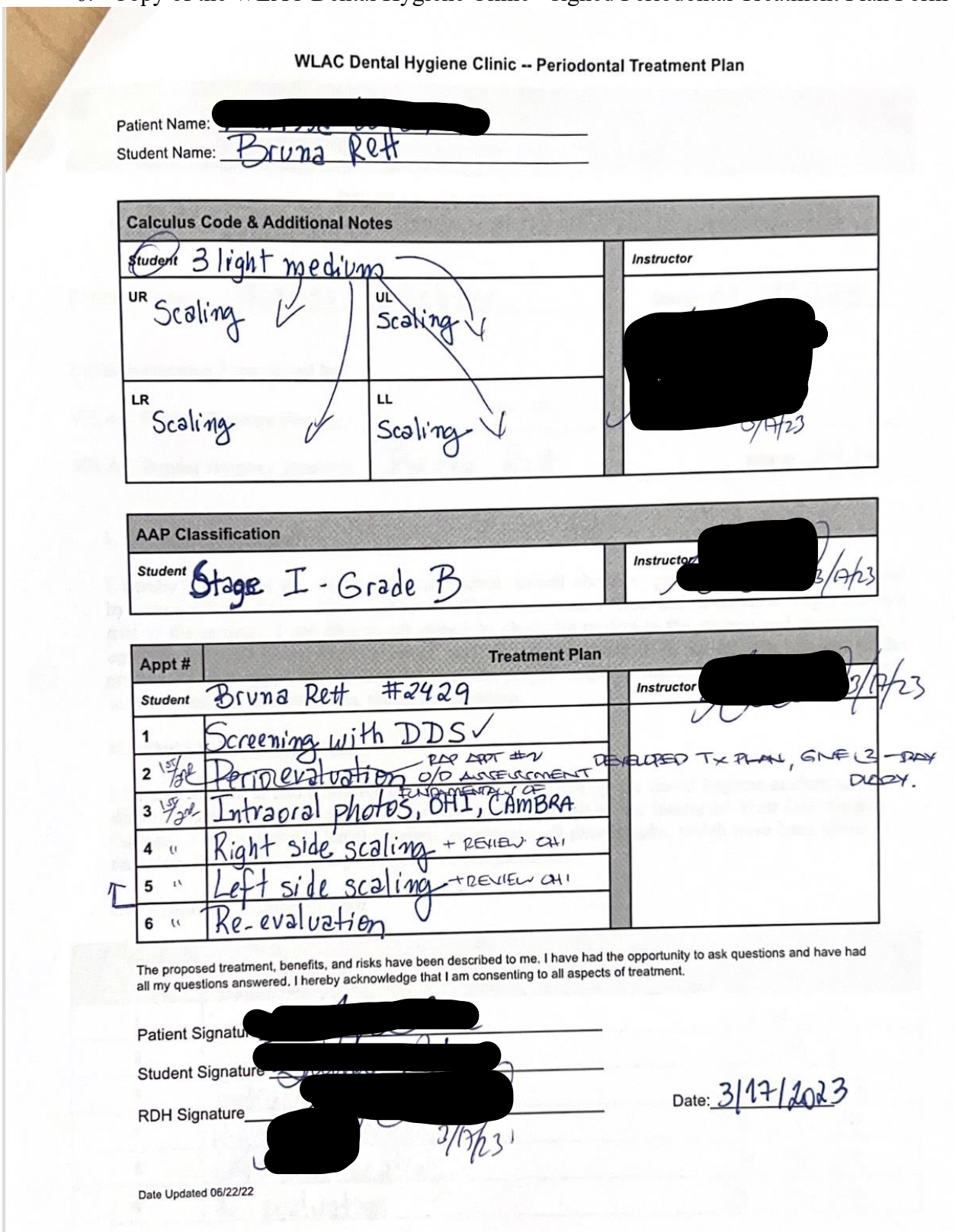
Tooth	PAIN √	Existing Condition (Restorations, Broken teeth, etc.)	Student Observation (Stains, deep pits, Fracture etc....)	Dentist Visual Findings	Dentist Radiographs Findings	Treatment Plan	NOTES by Dentist
~~1~~							
2		~~Occlusal filling~~				Sealant	
3		Filling	Occlusal		O amal		
4 (A)							
5 (B)							
6 (C)							
7 (D)							
8 (E)							
9 (F)							
10 (G)							
11 (H)							
12 (I)			incipient				
13 (J)			Mesial insipidus caries				
14		~~O amal~~	Distal insipidors cane		O amal		
15		~~Filling~~	~~Occlusal~~ Mesial insipidoos caries			Sealant	
~~16~~							
~~17~~							
18						Sealant	
19					M/D incipient	Sealant	
20 (K)					D incipient		
21 (L)							
22 (M)							
23 (N)							
24 (O)							
25 (P)							
26 (Q)							
27 (R)							
28 (S)							
29 (T)							
30		Filling	Occlusal		OBCOMP		
31						Sealant	
~~32~~							

The above-named patient has been referred for periodontal assessment and treatment by dental hygiene faculty/students.
Other Notes and Recommendations: Mandibular Tori

DDS Printed Name: [redacted] DDS Signature: [redacted] Date: 3/2/23

Date Updated 02/05/2023

6. Copy of the WLAC Dental Hygiene Clinic - signed Periodontal Treatment Plan Form



WLAC Dental Hygiene Clinic -- Periodontal Treatment Plan

Patient Name: [redacted]

Student Name: Bruna Reft

Calculus Code & Additional Notes		
Student: 3 light medium		Instructor
UR: Scaling	UL: Scaling	[redacted] 3/17/23
LR: Scaling	LL: Scaling	

AAP Classification	
Student: Stage I - Grade B	Instructor: [redacted] 3/17/23

Appt #	Treatment Plan	Instructor
Student	Bruna Reft #2429	[redacted] 3/17/23
1	Screening with DDS ✓	
2 1st appt	Perioevaluation RDH APPT #1 O/D ASSESSMENT	DEVELOPED Tx PLAN, GIVEN 3-DAY DIARY.
3 1st appt	Intraoral photos, OHI, CAMBRA ENVIRONMENTAL RF	
4 "	Right side scaling + REVIEW OHI	
5 "	Left side scaling + REVIEW OHI	
6 "	Re-evaluation	

The proposed treatment, benefits, and risks have been described to me. I have had the opportunity to ask questions and have had all my questions answered. I hereby acknowledge that I am consenting to all aspects of treatment.

Patient Signature: [redacted]

Student Signature: [redacted]

RDH Signature: [redacted] 3/17/23

Date: 3/17/2023

Date Updated 06/22/22

7. Copy of the "*Dental Hygiene Program - Patient Information and Informed Consent for Limited Treatment*" form.

West Los Angeles College

DENTAL HYGIENE PROGRAM
PATIENT INFORMATION AND INFORMED CONSENT FOR LIMITED TREATMENT

Patient's Name: [redacted] **Date:** 03/17/2023

Initial Screening Completed by:

WLAC Dental Hygiene Faculty: [redacted]

WLAC Dental Hygiene Student: [redacted] **DH #:** [redacted]

I. Treatment Consent

I hereby authorized the dental hygiene student named above to provide preventive and dental hygiene services. I was informed about the Risk Assessment Project and its benefits. I agree to be a part of the project. I was able to ask questions about the project to the student and instructors. I agree to have my dental chart reviewed, and have copies made of it, for the sole purpose of the project. I also agree and understand that the project requires multiple appointments and will maintain the appointment dates, times, and duration.

II. Photo Release Agreement

I hereby consent to and authorize the use and reproduction by the dental hygiene student named above, or anyone authorized by the dental hygiene student or the faculty of West Los Angeles College - Department of Dental Hygiene, of any and all photographs, which have been taken of me solely for educational purposes, without compensation.

III. Proposed Treatment Plan

Appointment #	Treatment Plan per Appointment	Date
1	Screening with DDS	3-2-23
2	Perio evaluation	3-17-23
3	Intraoral photos	3-25-23
4	Right side scaling	4-11-23
5	Left side scaling	4-18-23
6	Re-evaluation	5-9-23

Does the patient require a referral? ☐ Yes ☒ No

If patient requires a referral, please indicate:

Patient Referred to: _____

Reason for Referral: _____

_____

_____

IV. Approved Treatment (This section to be completed by the Supervising Dentist)

I have reviewed the required assessment records and patient information and approve the following treatment to be performed (Please check one and initial on the line):

- Dental Radiographs:
  - ☒ FMX _____ [redacted] 3/17/23
  - ☐ Panoramic and BWX _____
  - ☐ BWX only _____
  - ☒ No Radiographs Needed _____
- Periodontal Therapy (*as indicated in the proposed treatment plan listed above*) * _____

V. Required Signatures

Patient Signature: [redacted] **Date:** 3.17.2023

DH Student Signature: [redacted] **Date:** 03/17/2023

DH Faculty Signature: [redacted] **Date:** 3/17/23

D.D.S. Signature and License # [redacted] **Date:** 3/17/23

8. Copy of the pre- and post-oral hygiene status - PI and MBI form or Plaque Index PE form

West Los Angeles College
Health Science Division
Department of Dental Hygiene
Process Evaluation Form

Student Name/Number: Bruna Rett #2429
Date: 03/25/2023
Instructor: [redacted]
Attempt: Feedback (1st) 2nd 3rd

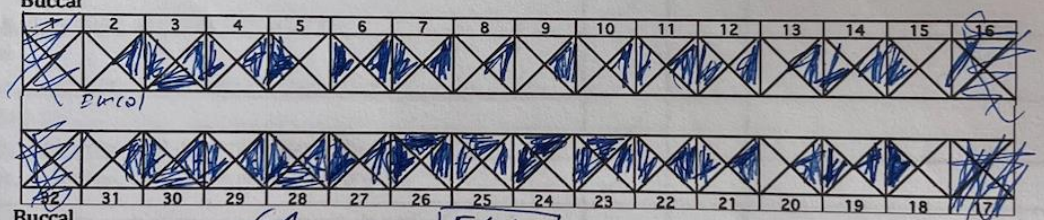
PLAQUE INDEX

Process Evaluation	Pass	No Pass	Notes
- PE form ready / Student name, date, and attempt filled in	✓		
- Discusses rationale, benefit, and outcome of disclosing and plaque index for patient	✓		
- Prepares all necessary armamentarium	✓		
- Neatly discloses patient's teeth	✓		
- Identifies plaque on similar teeth surfaces as instructor	✓		
- Calculates plaque index identified by student and instructor correctly - Student's calculation is within 10% difference of instructor's	✓		
- Demonstrates professional behavior and uses dental terminology - Demonstrates professional patient management	✓		
- ***Maintains infection control throughout entire evaluation	✓		

*** = *Indicates critical criteria. If competency is not met, student will receive a summary evaluation grade of "0".*

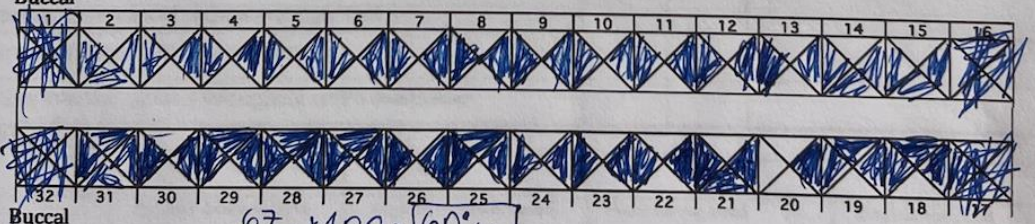
STUDENT FINDINGS

Buccal



Buccal
Show your calculation here: $\frac{61}{28 \times 4} \times 100 = 54\%$

Buccal



Buccal
Show your calculation here: $\frac{67}{28 \times 4} \times 100 = 60\%$

4	3	2	1	0
Student demonstrated correct sequence and proper technique without guidance.	Student demonstrated 1-2 minor errors and required minimal guidance.	Student demonstrated 3 minor errors, required guidance but corrected with verbal feedback.	Student required constant guidance, demonstrated 4 errors, difficulty completing task.	Student required constant guidance, unable to complete task. Student made more than 4 errors or ONE critical error.

[redacted] Instructor Signature

4.0 Grade

Plaque Index -2021

9. Copy of Fundamentals of Oral Hygiene Instructions PE form

West Los Angeles College
Health Science Division
Department of Dental Hygiene
Process Evaluation Form

Student Name/Number: Bruna Reff #2429
Date: 03/28/2023
Instructor: [redacted] Smith
Attempt: 1st 2nd 3rd

FUNDAMENTALS OF ORAL HYGIENE INSTRUCTIONS

	Pass	No Pass
Preparation		
Possesses and organizes all educational armamentarium prior to start (patient education book, OHI supplies, OHI models, etc.)	✓	
Establishes the benefits of oral hygiene instructions.	✓	
Utilizes appropriate patient/operator positioning and verbal and nonverbal communication skills to establish patient/provider relationship. – you want to be at same level as pt		✓
Assessment		
Assesses patient's medical history and dental history for items applicable to oral health and hygiene.	✓	
Determines patient's current knowledge of dental hygiene.	✓	
Assesses patient's oral structures, occlusion, tissue contour, types of embrasures, etc.	✓	
Assesses patient's oral hygiene by correlating plaque index score and clinical assessment.		✓
Assesses patient's oral hygiene techniques and abilities (dexterity). – in the mouth	✓	
Determines patient's current oral hygiene status via clinical observation and assessment.	✓	
Interpretation and Discussion of Plan		
Discusses findings of clinical observation and assessment and discusses periodontal disease concepts.		✓
Customizes an oral healthcare plan based on the patient's needs and oral hygiene status.	✓	
Selects appropriate preventive aids and products for the patient's disease risk level. (Include options for antimicrobials, fluoride Tx, xylitol, dental sealants, frequency of dental exams, radiographs, and dental hygiene services.)	✓	
Establishes and discusses techniques and goals to improve oral hygiene status.	✓	
Implementation of Plan and Instructions		
Demonstrates oral hygiene methods discussed in plan using the "tell-show-do" approach wearing appropriate PPE. only w/ model	✓	
Evaluates and provides guidance to patient as they perform recommended instructions.	✓	
Allows patient to ask questions and give feedback.	✓	
Professionalism		
Provided instructions and demonstration in a caring manner.	✓	
Presentation was organized, relevant, and customized to the patient's needs.	✓	
Managed patient care and provided service in a timely manner (within 15 minutes).	✓	
Documented patient's oral hygiene status and specific OHI instructions given to the patient in patient's record.	✓	
**Followed appropriate infection control protocol throughout process and wore appropriate PPE.	✓	

***** = Indicates critical criteria. If competency is not met (criteria is not performed correctly), student will receive a process evaluation grade of "0".***

Summary Evaluation				
4	3	2	1	0
Student demonstrated correct sequence and proper technique without guidance.	Student demonstrated 1-2 minor errors and required minimal guidance.	Student demonstrated 3 minor errors, required guidance, but corrected with verbal feedback.	Student demonstrated 4 errors, required constant guidance, and had difficulty completing the task.	Student demonstrated 4 or more errors or ONE critical error, required constant guidance, and was unable to complete the task.

Comments:

* Be sure to correct pt if they [redacted] something wrong

Instructor Signature

Grade 2.0

10. Copy of CAMBRA Forms

CARIES RISK ASSESSMENT FORM - ADULTS/CHILDREN AGED 6 YEARS AND OVER

Patient Name: [redacted] Chart #: [redacted] Age 36

Assessment date: _____ Is this: (please circle) Baseline or Recall

FACTORS	HIGH (Please circle responses)	MODERATE	LOW
1. Local Factors			
Plaque/Calculus	generalized	localized	minimal/none
2. Dental Conditions			
*Visible cavitations	YES		no
Cavity in last 3 years	yes		no
+Inadequate saliva flow	yes		no
Exposed roots		yes	no
Deep pits/fissures		yes	no
Radiographic lesions		yes	no
White spot lesions		yes	no
Appliances present	yes		no
3. Medical History:			
Sjogren's syndrome	yes		no
Hyposalivary meds	yes		no
Radiation Therapy	yes		no
4. Dietary Habits			
Snacks between meals	>3 times	1-3 times	infrequent
Regular Soda	yes	infrequent	no
5. Environmental			
Recreational drugs	yes		no
6. Protective Factors			
Fluoridated water	no		yes
Fluoridated toothpaste	no		yes
Adequate saliva flow	no		yes
Fluoride mouthrinse		no	yes
Xylitol gum/mints		no	yes
Chlorhexidine rinse		no	yes
Povidone Iodine rinse		no	yes
7. Laboratory Tests			
Saliva Flow	Recommended	Recommended	Optional
Bacterial Culture	Recommended	Recommended	Optional
Lab Test Results: MS:	LB:	Flow Rate:	ml/min.

CARIES RISK ASSESSMENT:	HIGH	MODERATE	LOW
PROGNOSIS:	POOR	MODERATE	GOOD

I have been given the recommendation to have a CRT to determine my bacterial counts as a part of my overall caries risk assessment. I understand the risks and benefits of the test and I decline, releasing my dentist(s) of any liability associated with declining the test.

Release signature [redacted] Date 5.23.23

* If visible cavitation present CRT test and saliva flow rate measurement are recommended

+If saliva flow appears inadequate Saliva Flow test is recommended. If rate <1 ml/min follow protocol for xerostomia

Instructions for Caries Risk Assessment Form – ADULTS/CHILDREN AGED 6 YEARS AND OVER

1. If the answer is yes to **"visible cavitations"** or if the majority of responses are in the high or moderate columns, then a bacterial test and saliva flow rate test should be given using the **CRT bacteria test*** (Vivadent) – see below.
2. Determine overall caries risk level (high, moderate, or low) based on the balance of circled responses in each of the three risk columns. Prognosis is determined by assessing the patient's risk factors, motivation, and, whenever possible, the CRT bacteria test results.
3. Provide the patient with recommendations based on your clinical observations and the responses to the questions and discuss strategies for caries control and management. Give the patient the sheet that explains how caries happens and the sheet with your recommendations. Copy the recommendations for the patient chart.
4. Inform the patient of the results of any test results. Showing the patient the bacteria grown from their mouth (CRT test result*) can be a good motivator so have the culture tube handy at the next visit (or schedule one for this purpose - the culture keeps satisfactorily for some weeks), or give/send them a picture.
5. After the patient has been following your recommendations for 1-6 months, have the patient back to re-assess how well they are doing. Ask them if they are following your instructions – how often. If the bacterial levels were moderate or high initially, repeat the bacterial test to see if bacterial levels have been reduced. Make changes in your recommendations or reinforce protocol if results are not as good as desired or the patient is not compliant.

***Test procedures – Saliva Flow Rate and Caries Bacteria Testing**

+*1. ***Saliva Flow Rate:*** Have the patient chew a paraffin pellet (included with the CRT test – see below) for 3-5 minutes (timed) and spit all saliva generated into a cup. At the end of the 3-5 minutes measure the amount of saliva (in milliliters) and divide that amount by time to determine the ml/minute of stimulated salivary flow. A flow rate of 1 ml/min and above is considered normal. A level below 1 ml/min is xerostomic, indicating a high-risk situation. Investigation of the reason for the low flow rate is an important step in the patient treatment. Record saliva flow rate on the Caries Risk Assessment form (under **7. Laboratory Tests**).

*2. ***Bacterial testing:*** **CRT bacteria test:** In the USA one of the two currently available "chair-side" tests for cariogenic bacterial challenge is the Caries Risk Test (CRT) marketed by Vivadent (Amherst, NY). It is sufficiently sensitive to provide a level of low, medium or high cariogenic bacterial challenge. It can also be used as a motivational tool for patient compliance with an antibacterial regimen. Other bacterial test kits will likely be available in the near future. The following is the procedure for administering the currently available CRT test. Results are available after 48 hours.

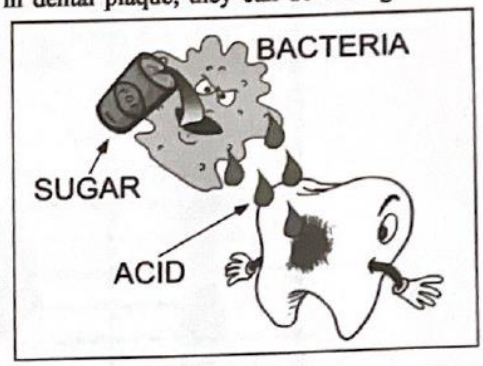
The kit comes with two-sided selective media sticks that assess mutans streptococci (MS) on the blue side and lactobacilli (LB) on the green side.

a) Remove the selective media stick from the culture tube. Peel off the plastic cover sheet from each side of the stick.
b) Pour the collected saliva over the media on each side until it is entirely wet.
c) Place one of the sodium bicarbonate tablets (included with the kit) in the bottom of the tube.
d) Replace the media stick in the culture tube, screw the lid on and label the tube with the patient's chart number and date. Place the tube in the incubator at 37 °C for 48 hours.
e) Collect the tube after 48 hours and compare the densities of bacterial colonies with the pictures provided by the incubators indicating relative bacterial levels. The dark blue agar is selective for mutans streptococci and the light green agar is selective for Lactobacilli.
f) Record the level of bacterial challenge for mutans streptococci and Lactobacilli in the patient's treatment record and on the Caries Risk Assessment form (under **7. Laboratory Tests**) as low, moderate or high.

Patient signature [redacted] Date: 5.23.23

How Tooth Decay Happens

Tooth decay is caused by certain types of bacteria (mutans streptococci and Lactobacilli) that live in your mouth. When they attach themselves to the teeth and multiply in dental plaque, they can do damage. The bacteria feed on what you eat, especially sugars (including fruit sugars) and cooked starch (bread, potatoes, rice, pasta, etc.). Within about 5 minutes after you eat, or drink, the bacteria begin producing acids as a by-product of their digesting your food. Those acids can penetrate into the hard substance of the tooth and dissolve some of the minerals (calcium and phosphate). If the acid attacks are infrequent and of short duration, the saliva can help to repair the damage by neutralizing the acids and supplying minerals and fluoride that can replace those lost from the tooth. However if: 1. your mouth is dry, 2. you have many of these bacteria, 3. you snack frequently; then the tooth mineral lost by attacks of acids is too much, and cannot be repaired. This is the start of tooth decay and leads to cavities.



Methods of Controlling Tooth Decay

Diet: Reducing the number of sugary and starchy foods, snacks, drinks or candies can help reduce the development of tooth decay. That does not mean you can never eat these types of foods, but you should limit their consumption particularly when eaten between main meals. A good rule is 3 meals per day and no more than 3 snacks per day.

***Fluorides*:** Fluorides help to make the tooth more resistant to being dissolved by the bacterial acids. Fluorides are available from a variety of sources such as drinking water, toothpaste, over-the-counter rinses, and products prescribed by your dentist such as brush-on gels used at home or gels and foams applied in the dental office. Daily use is very important to help protect against the acid attacks.

***Plaque removal*:** Removing the plaque from your teeth on a daily basis is helpful in controlling tooth decay. Plaque can be difficult to remove from some parts of your mouth especially between the teeth and in grooves on the biting surfaces of back teeth. If you have an appliance such as an orthodontic retainer or partial denture, remove it before brushing and flossing your teeth. Brush all surfaces of the appliance also.

Saliva: Saliva is critical for controlling tooth decay. It neutralizes acids, and provides minerals and proteins that protect the teeth. If you cannot brush after a meal or snack, you can chew sugar-free gum. This will stimulate the flow of saliva to help neutralize acids and bring lost minerals back to the teeth. Sugar-free candy or mints could also be used, but some of these contain acids themselves. These acids will not cause tooth decay, but they can slowly dissolve the enamel surface directly over time (a process called erosion). Some sugar-free gums are designed to help fight tooth decay and are particularly useful if you have a dry mouth (many medications can cause a dry mouth). Some gums contain baking soda (***Dental Care Gum***, Arm & Hammer) that neutralizes the acids produced by the bacteria in plaque.

Gum that contains Xylitol as its first listed ingredient is the gum of choice. If you have a dry mouth, you could also fill a drinking bottle with water and add 2 teaspoons of baking soda for each 8 ounces of water and swish with it frequently throughout the day. Toothpastes containing baking soda are also available from several companies.

Antibacterial mouth rinses: Rinses that your dentist can prescribe are able to reduce the numbers of bacteria that cause tooth decay and can be useful in patients at high risk for tooth decay.

Sealants: Sealants are plastic coatings bonded to the biting surfaces of back teeth to protect the deep grooves from decay. In some people the grooves on the surfaces of the teeth are too narrow and deep to clean with a toothbrush, so they may decay in spite of your best efforts. Sealants are an excellent preventive measure used for children and young adults at risk for this type of decay. Currently, there are new sealant materials made of glass ionomer that act as a long-term fluoride delivery system, but may not last as long as resin.

11. Copy of Patient Recommendations for Control of Dental Decay

Patient Recommendations for Control of Dental Decay-ADULTS/CHILDREN OVER AGE 6

Patient Name: _____ **Chart #**_____

I. LOW RISK

Daily Oral Hygiene *(Aimed at reducing the overall bacteria in the mouth, especially at sites likely to decay. Choose the recommendations based on the danger sites and the condition of the mouth)*

____ brush twice daily (with fluoride toothpaste, all patients) ____ floss daily ____ Superfloss
____ interproximal brush ____ Stimudents ____ toothpick
____other:_____

Diet (The most important thing is to reduce the number of snacks between meals that contain carbohydrates, especially sugars. Substitution by snacks rich in protein, such as cheese, will also help)

____ OK as is ____ limit snacking ____ limit sodas
____ other:_____

Fluorides **(All patients should use fluoride toothpaste twice daily).** Additional fluoride products should be added, depending on whether the risk level is medium or high. Home fluoride products must be used daily to be effective).

____ regular fluoride-containing toothpaste
____ fluoride rinse (0.05 % NaF, ***ACT*** or ***Fluorigard***) 2X/day (use twice a day, once in the morning after breakfast and once last thing at night. Continue long term with older patients or those who need or want extra protection). Note that ***ACT*** contains no alcohol and may be preferred by a patient with dry mouth.)

Xylitol gum/mints (The gums or mints that contain xylitol cannot cause cavities. In addition, xylitol has an anti-cavity effect against the decay-causing bacteria. Look for xylitol products at stores that list "xylitol" as the first ingredient, or even better (and cheaper) search for "pure" xylitol products, under "xylitol" on the World Wide Web. Xylitol can be used as a sugar substitute even while cooking or baking; however, it may cause diarrhea if used in excess.) **Note: xylitol is a "special" sugar substitute that tastes just like table sugar. Other sugar substitute products will not have its cavity fighting properties and table sugar is sure to make things worse.**

____ Chew xylitol gum for 5 minutes after snacks or at least 3-5 times/day.
____ Use xylitol mints 3 – 5 times/day
____ office fluoride trays
____ office fluoride varnish

II. MODERATE TO HIGH RISK (ALL THE ABOVE PLUS:)

Daily high concentration fluoride

____ ***Prevident*** **5000 Plus (high fluoride toothpaste)**
____ ***Prevident*** "brush-on" nightly, **OR** in custom tray 10 min./night (For high risk patients, especially those with low saliva flow, or root caries, or active cavities. Continue until the risk status is lowered, then revert to fluoride as above).

Antibacterial rinse

____ **Chlorhexidine gluconate,** 0.12% (***Periogard, Peridex, Oral Rx,*** available on prescription). Rinse 1 minute with ½ oz. at bedtime for one week (discontinue ***ACT*** or ***Fluorigard*** for this week). Stop for three weeks (resume use of ***ACT*** or ***Fluorigard*** during this time). Repeat chlorhexidine rinse for one week each month.
____ 10% providone iodine (***Betadine***) to be **administered by dental professional only** (ask about allergies and contraindications). Rinse or swab topically for 1-2 minutes 1x/mo.

III. FOR DRY MOUTH (ALL THE ABOVE PLUS:)

____ baking soda toothpaste with fluoride
____ baking soda gum - ***Dental Care Gum*** (Arm & Hammer, or similar product containing baking soda and xylitol.) Chew frequently throughout the day, especially after snacks.
____ rinse frequently with baking soda suspension during the day, especially after snacks. (Fill a sports water bottle with water and add 2 teaspoons of baking soda for each 8 oz. of water).
____ fluoride lozenges (***Lozi-Flur*** or ***Fluor-a-day***) 1X/day (use for high risk patients with low saliva flow, such as radiation xerostomia.) By dissolving in the mouth, these lozenges provide a concentrated fluoride reservoir to protect against mineral loss, and to enhance repair by remineralization. Dissolve slowly in mouth by holding the lozenge in a convenient place)
____Calcium and phosphate enhancing products (***MI Paste with Recalcident***)

12. Copy of the Oral Hygiene Instructions Assessment

West Los Angeles College
Department of Dental Hygiene
Process Grading Form

Student Name Bruna Rett [redacted]
Date 5/23/23
Instructor [redacted]

Oral Hygiene Instruction - Caries Risk Assessment (CAMBRA) assessment Grade: 4.0

Preparation	Pass	No Pass
Explains the benefits of oral hygiene instruction and caries risk assessment to patient	✓	
Establishes appropriate patient/operator positioning	✓	
Uses verbal and nonverbal communication skills to establish patient/provider relationship	✓	

Assessment	Pass	No Pass
Assesses the patient's current oral hygiene status and caries risk by interview, clinical observation and assessment form.	✓	
Uses saliva test if available	—	
Disclose and determine the Plaque Index if applicable. It allows the patient to self-evaluate.	✓	
Asks the patient to demonstrate brushing, flossing, and other oral care techniques	✓	
Assesses patient's oral structure, occlusion, tissue contour, types of the embrasure and manual dexterity	✓	
Determines dental knowledge of the patient	✓	

Interpretation and Plan	Pass	No Pass
Interprets appropriate risk level using a risk assessment form	✓	
Customizes the oral health care plan based on the patient's needs and status	✓	
Selects appropriate preventive aids and products for the risk level (include options for antimicrobials, fluoride, xylitol, sealants, and frequency of radiographs and dental hygiene services)	✓	

Implement and Instruction	Pass	No Pass
Discusses disease concepts and engages patient better to hold OHI book yourself	✓	
Discusses goal and technique to improve oral hygiene status and caries risk status	✓	
Demonstrates appropriate tooth brushing method, flossing method, Interproximal cleaning method, and other preventive homecare agents	✓	
Demonstrates by using the tell-show-do approach	✓	
Allows patient to give feedbacks and evaluates the patient's ability to perform recommended instruction	✓	
Professionalism	**Pass**	**No Pass**
Provides instruction and demonstration in a caring manner	✓	
Manages patient care and provides service in a timely manner within 15 minutes.	✓	
Documents patient's oral hygiene status and specific OHI instruction given to patient in patient's record.	✓	
**Appropriate protective wear and infection control throughout the process.	✓	

** These asterisks indicate critical criteria. When asterisk criteria are not performed correctly, summary evaluation grade will "0".

Summary Evaluation

4	3	2	1	0
Sudent demonstrated correct sequence and proper technique without guidance.	The student demonstrated 1-2 minor errors and required minimal guidance.	Student demonstrated 3 minor errors required guidance but corrected with verbal feedback	Student required constant guidance, demonstrated 4 errors, difficulty completing the task	Student required constant guidance, unable to complete task. Student-made more than 4 errors or ONE critical error.

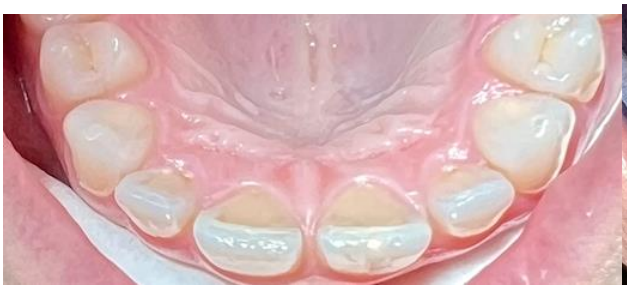
quadrant ≈ sections

Form #13 Oral Hygiene Instruction/CAMBRA 2021

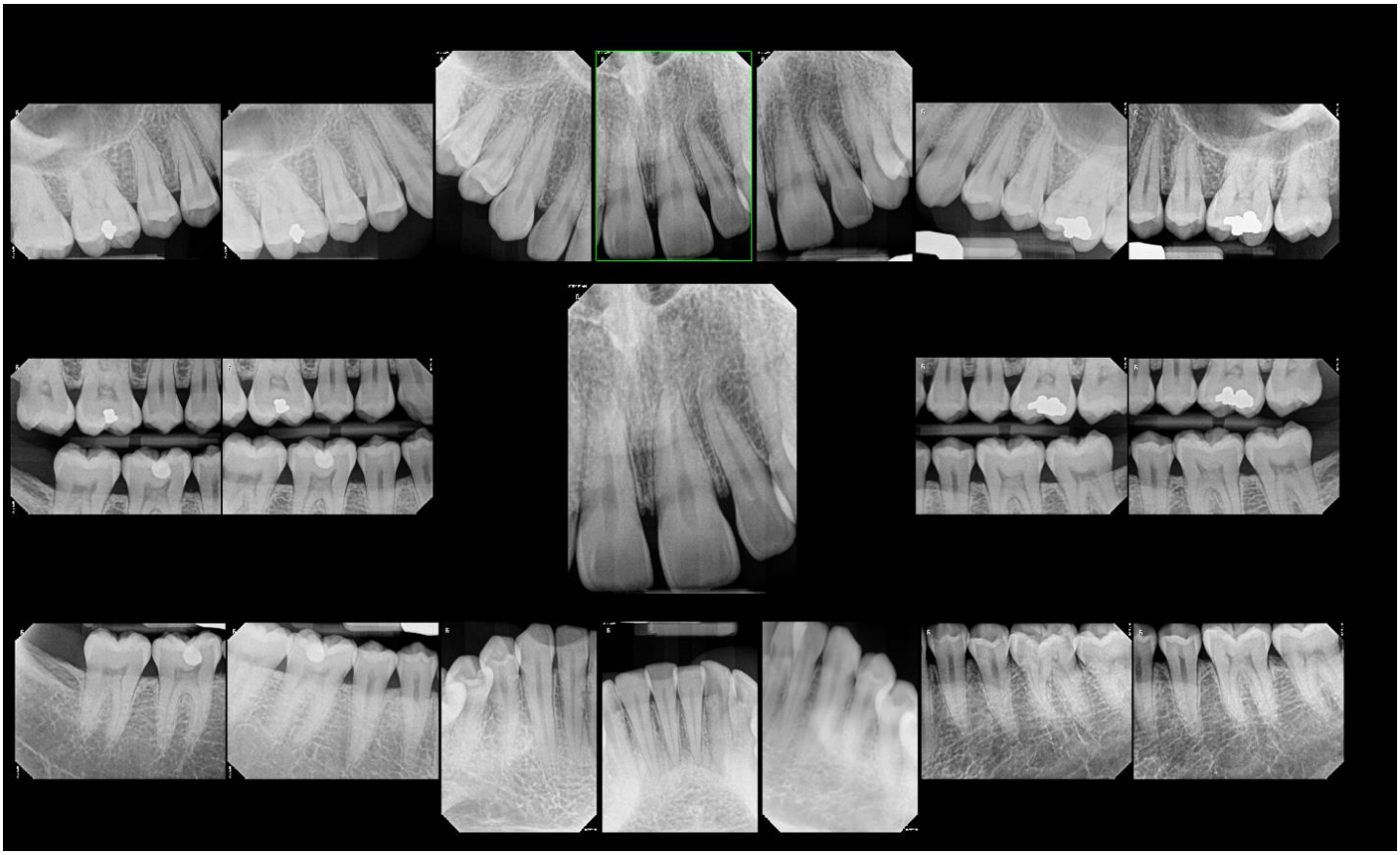
[redacted]

13. Copy of pre- and post- photographs of non-disclosed teeth Appointment #1 (Organize photographs and label the views)

14. Copy of pre- and post- photographs of disclosed teeth Re-evaluation appointment (Organize photographs and label the views)

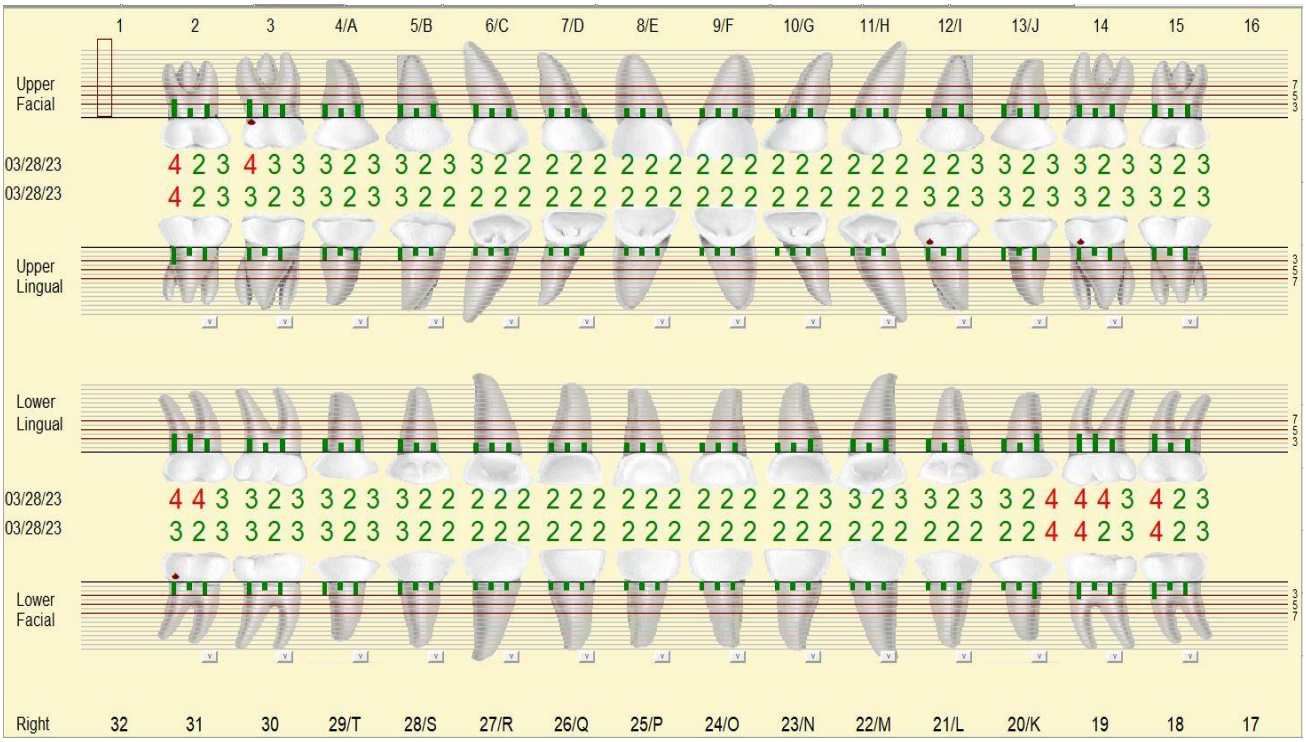


15. Copy of full mouth, panoramic or BWX/PA radiographs **DATED 3/02/2023**

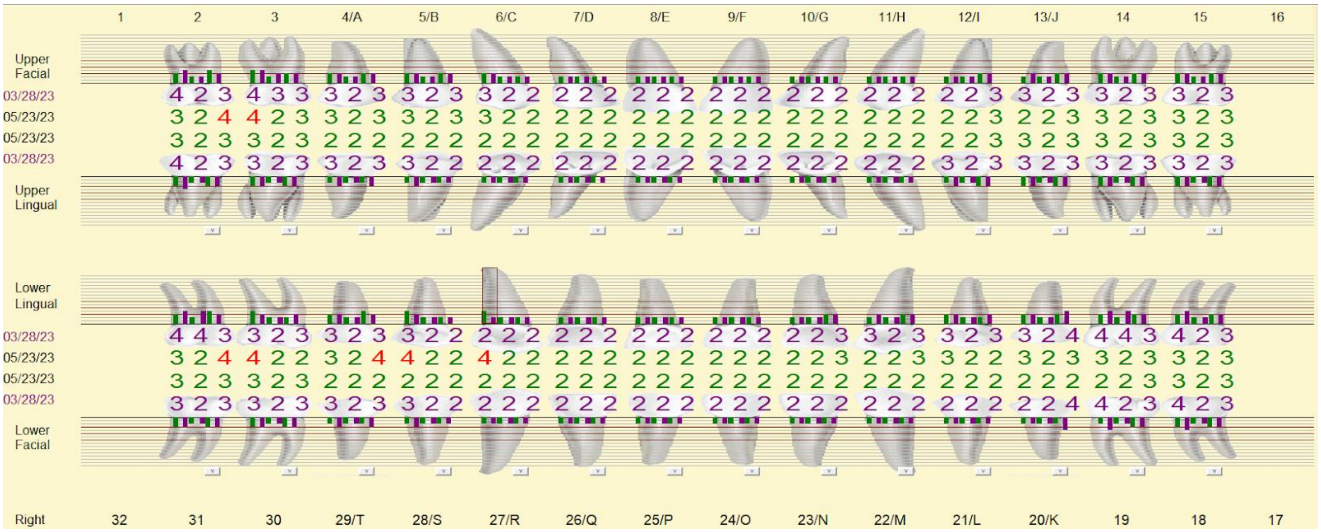


16. Copy of pre-Tx and post-Tx probing depth records (Periodontal Probing on a Patient PE form)

Pre-Tx



Post Tx:



17. Copy of the 3-day Food Diary before nutritional counseling - Set One

RISK ASSESSMENT PROJECT
FOOD DIARY - DAY #1

Name of Patient: [redacted] **Date:** 03 / 17 / 2023
03 18 2023

***Instructions*:**

- Please list EVERYTHING you eat and drink in three (3) consecutive, typical days.
  If possible, include at least one (1) weekend day (Saturday or Sunday).
- Please include extras such as chewing gum, sugar and/or cream in your coffee, dressing on a salad, or ketchup or mustard on sandwich.
- Under the "Guesstimate Calories" column, please write down your guess for nutritional facts such as calories, sodium content, fat content, carbohydrates, etc.
  Do not look up the exact Calories.
  Your student dental hygienist will look up and provide the correct information at a later time.

Time (How long?)	Food Eaten or Beverages Drank (List each food item *separately*)	Amount Eaten or Drank	Guesstimate Calories (What you believe are the calories, sodium/fat content, etc.)
Example: 6:00 AM to 6:15 AM (15 minutes)	*McDonalds Egg McMuffin*	*1*	*290 calories*
6:00 AM to 6:15 AM (15 minutes)	Orange Juice	1 large cup (22 oz)	280 calories
8:10 - 8:30	Coffee w/ collagen & Creamer	12oz	140 cal
10 - 10:45	Ham & Cheese Croissant	1	340 cal
10 - 10:45	Iced coffee black	12oz	10 cal
12:30	Champ's meat stick	1	60 cal
2:00	corned beef & cabbage, carrot, & potato	1 plate	680 cal
3:32	Coffee & creamer	8oz	140 cal
3:30	chocolate cup cake	1	250 cal
6:15	Ghiradelli chocolates	2	140 cal
8:15 pm	Sm chix ceasar salad	1	360 cal

Did you exercise today?
If yes, please list your type of exercises for the day and the length of time.
If no, please leave the table blank.

Type of Exercise	Length of Time
Yoga	1 hour

RISK ASSESSMENT PROJECT
FOOD DIARY - DAY #2

Name of Patie [redacted] **Date:** 03 / 17 / 2023
3.19.2023

Instructions:

- Please list EVERYTHING you eat and drink in three (3) consecutive, typical days.
  If possible, include at least one (1) weekend day (Saturday or Sunday).
- Please include extras such as chewing gum, sugar and/or cream in your coffee, dressing on a salad, or ketchup or mustard on sandwich.
- Under the "Guesstimate Calories" column, please write down your guess for nutritional facts such as calories, sodium content, fat content, carbohydrates, etc.
  Do not look up the exact Calories.
  Your student dental hygienist will look up and provide the correct information at a later time.

Time (How long?)	Food Eaten or Beverages Drank (List each food item *separately*)	Amount Eaten or Drank	Guesstimate Calories (What you believe are the calories, sodium/fat content, etc.)
Example: 6:00 AM to 6:15 AM (15 minutes)	*McDonalds Egg McMuffin*	*1*	*290 calories*
6:00 AM to 6:15 AM (15 minutes)	Orange Juice	1 large cup (22 oz)	280 calories
9am	Homemade lemon tea (cold brewed)	12 oz	140 cals
9:15	1 egg, mushroom, ketchup, 2 pcs Gluten Free toast w/ butter	1 plate	310 cals
2:10pm	1 dark chocolate bar	1	90 cals
4:30pm - 10pm	Coconut Margaritas	2	750 cals
4:30 - 10pm	Chicken Enchiladas w/ Rice	1 plate	900 cals

Did you exercise today?
If yes, please list your type of exercises for the day and the length of time.
If no, please leave the table blank.

Type of Exercise	Length of Time
Yoga	1 hour

RISK ASSESSMENT PROJECT
FOOD DIARY - DAY #3

Name of Patient: [redacted]er **Date:** 03 / 17 / 2023
3.20.2023

***Instructions*:**

- Please list EVERYTHING you eat and drink in three (3) consecutive, typical days.
  If possible, include at least one (1) weekend day (Saturday or Sunday).
- Please include extras such as chewing gum, sugar and/or cream in your coffee, dressing on a salad, or ketchup or mustard on sandwich.
- Under the "Guesstimate Calories" column, please write down your guess for nutritional facts such as calories, sodium content, fat content, carbohydrates, etc.
  Do not look up the exact Calories.
  Your student dental hygienist will look up and provide the correct information at a later time.

Time (How long?)	Food Eaten or Beverages Drank (List each food item *separately*)	Amount Eaten or Drank	Guesstimate Calories (What you believe are the calories, sodium/fat content, etc.)
Example: 6:00 AM to 6:15 AM (15 minutes)	*McDonalds Egg McMuffin*	*1*	*290 calories*
6:00 AM to 6:15 AM (15 minutes)	Orange Juice	1 large cup (22 oz)	280 calories
8 AM	Coffee w/ Collagen & Creamer	1	140 cals
9 AM	2 Hashbrowns, Vegan kebab	1 plate	380 cals
2 pm	Small Salad w/ chick & vegan Italian dress	1 bowl	400 cals
3:15 pm	mini peanut butter crackers	2 servings	300 cals
5:15 pm	White rice & yellow veggie curry	1 cup	450 cals
7 pm	1 dark chocolate bar	1	90 cals

Did you exercise today?
If yes, please list your type of exercises for the day and the length of time.
If no, please leave the table blank.

Type of Exercise	Length of Time
Yoga	1 hour

18. Copy of the 3-day Food Diary after nutritional counseling - Set Two

RISK ASSESSMENT PROJECT
FOOD DIARY - DAY #1

Name of Patient: [redacted] **Date:** 03 / 25 / 2023

***Instructions*:**

- Please list EVERYTHING you eat and drink in three (3) consecutive, typical days.
  If possible, include at least one (1) weekend day (Saturday or Sunday).
- Please include extras such as chewing gum, sugar and/or cream in your coffee, dressing on a salad, or ketchup or mustard on sandwich.
- Under the "Guesstimate Calories" column, please write down your guess for nutritional facts such as calories, sodium content, fat content, carbohydrates, etc.
  Do not look up the exact Calories.
  Your student dental hygienist will look up and provide the correct information at a later time.

Time (How long?)	Food Eaten or Beverages Drank (List each food item *separately*)	Amount Eaten or Drank	Guesstimate Calories (What you believe are the calories, sodium/fat content, etc.)
Example: 6:00 AM to 6:15 AM (15 minutes)	McDonalds Egg McMuffin	1	290 calories
6:00 AM to 6:15 AM (15 minutes)	Orange Juice	1 large cup (22 oz)	280 calories
8 AM	Coffee w/cream	8oz	140
8 AM	Croissant	1	250
12:45	Ceasar salad	1	300
1:00	Coffee w/cream	8oz	140
3:00	Chips	1 sm bag	230
6:00	Angel hair pasta	1	650

Did you exercise today?
If yes, please list your type of exercises for the day and the length of time.
If no, please leave the table blank.

Type of Exercise	Length of Time
Yoga	1 hour

Name of Patient: [redacted] Date: 03 / 25 / 2023

Instructions:

- Please list EVERYTHING you eat and drink in three (3) consecutive, typical days. If possible, include at least one (1) weekend day (Saturday or Sunday).
- Please include extras such as chewing gum, sugar and/or cream in your coffee, dressing on a salad, or ketchup or mustard on sandwich.
- Under the "Guesstimate Calories" column, please write down your guess for nutritional facts such as calories, sodium content, fat content, carbohydrates, etc. Do not look up the exact Calories. Your student dental hygienist will look up and provide the correct information at a later time.

Time (How long?)	Food Eaten or Beverages Drank (List each food item *separately*)	Amount Eaten or Drank	Guesstimate Calories (What you believe are the calories, sodium/fat content, etc.)
Example: 6:00 AM to 6:15 AM (15 minutes)	McDonalds Egg McMuffin	1	290 calories
6:00 AM to 6:15 AM (15 minutes)	Orange Juice	1 large cup (22 oz)	280 calories
7:45	Coffee w/ creamer	8oz	140
8:00	1egg 1 hashbrown	1 plate	320
10:00	Coffee w/ creamer	8oz	140
2:00	Grilled Cheese	1	210
6:00	Pad Thai	1 plate	800
7:45	ice cream	1 popsicle	140

Did you exercise today?
If yes, please list your type of exercises for the day and the length of time.
If no, please leave the table blank.

Type of Exercise	Length of Time
Yoga	1 hour

RISK ASSESSMENT PROJECT
FOOD DIARY - DAY #3

Name of Patient: [redacted]

Date: 03/25/2023

***Instructions*:**

- Please list EVERYTHING you eat and drink in three (3) consecutive, typical days. If possible, include at least one (1) weekend day (Saturday or Sunday).
- Please include extras such as chewing gum, sugar and/or cream in your coffee, dressing on a salad, or ketchup or mustard on sandwich.
- Under the "Guesstimate Calories" column, please write down your guess for nutritional facts such as calories, sodium content, fat content, carbohydrates, etc. Do not look up the exact Calories. Your student dental hygienist will look up and provide the correct information at a later time.

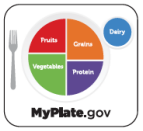
Time (How long?)	Food Eaten or Beverages Drank (List each food item *separately*)	Amount Eaten or Drank	Guesstimate Calories (What you believe are the calories, sodium/fat content, etc.)
Example: 6:00 AM to 6:15 AM (15 minutes)	McDonalds Egg McMuffin	1	290 calories
6:00 AM to 6:15 AM (15 minutes)	Orange Juice	1 large cup (22 oz)	280 calories
8:00	Coffee w/ creamer	8oz	140
8:00	egg w/ bacon	1 plate	280
11:00	Coffee w/ creamer	8oz	140
1:30	McChicken & lg Fry	1	650
6:00	Yellow Curry plate	1	700
8:00	chamomile tea w/ honey	1	80

Did you exercise today?
If yes, please list your type of exercises for the day and the length of time.
If no, please leave the table blank.

Type of Exercise	Length of Time
Yoga	1 hour

19. Copy of the MyPlate Plan

USDA Food and Nutrition Service
U.S. DEPARTMENT OF AGRICULTURE



Start *simple* with MyPlate Plan

The benefits of healthy eating add up over time, bite by bite. Small changes matter. Start Simple with MyPlate.

A healthy eating routine is important at every stage of life and can have positive effects that add up over time. It's important to eat a variety of fruits, vegetables, grains, protein foods, and dairy or fortified soy alternatives. When deciding what to eat or drink, choose options that are full of nutrients. Make every bite count.

Food Group Amounts for 2,200 Calories a Day for Ages 14+ Years

Fruits	Vegetables	Grains	Protein	Dairy
2 cups	**3 cups**	**7 ounces**	**6 ounces**	**3 cups**
Focus on whole fruits Focus on whole fruits that are fresh, frozen, canned, or dried.	Vary your veggies Choose a variety of colorful fresh, frozen, and canned vegetables—make sure to include dark green, red, and orange choices.	Make half your grains whole grains Find whole-grain foods by reading the Nutrition Facts label and ingredients list.	Vary your protein routine Mix up your protein foods to include seafood; beans, peas, and lentils; unsalted nuts and seeds; soy products; eggs; and lean meats and poultry.	Move to low-fat or fat-free dairy milk or yogurt (or lactose-free dairy or fortified soy versions) Look for ways to include dairy or fortified soy alternatives at meals and snacks throughout the day.

Limit

Choose foods and beverages with less added sugars, saturated fat, and sodium. Limit:

- Added sugars to **less than 55 grams** a day.
- Saturated fat to **less than 24 grams** a day.
- Sodium to **less than 2,300 milligrams** a day.

Activity

Be active your way:
Children 6 to 17 years old should move **60 minutes** every day. Adults should be physically active at least **2½ hours** per week.

MyPlate Plan

Write down the foods you ate today and track your small changes, bite by bite.

Food group targets for a 2,200-calorie* pattern are:	Write down your food choices for each food group.	Did you reach your target?
Fruits — **2 cups** 1 cup of fruits counts as • 1 cup raw or cooked fruit; or • ½ cup dried fruit; or • 1 cup 100% fruit juice.		Yes ___ No ___
Vegetables — **3 cups** 1 cup of vegetables counts as • 1 cup raw or cooked vegetables; or • 2 cups leafy salad greens; or • 1 cup 100% vegetable juice.		Yes ___ No ___
Grains — **7-ounce equivalents** 1 ounce of grains counts as • 1 slice bread; or • 1 ounce ready-to-eat cereal; or • ½ cup cooked rice, pasta, or cereal.		Yes ___ No ___
Protein — **6-ounce equivalents** 1 ounce of protein foods counts as • 1 ounce seafood, lean meats, or poultry; or • 1 egg; or • 1 Tbsp peanut butter; or • ¼ cup cooked beans, peas, or lentils; or • ½ ounce unsalted nuts or seeds.		Yes ___ No ___
Dairy — **3 cups** 1 cup of dairy counts as • 1 cup dairy milk or yogurt; or • 1 cup lactose-free dairy milk or yogurt; or • 1 cup fortified soy milk or yogurt; or • 1 ½ ounces hard cheese.		Yes ___ No ___

Limit:

- Added sugars to **less than 55 grams** a day.
- Saturated fat to **less than 24 grams** a day.
- Sodium to **less than 2,300 milligrams** a day.

Did you reach your target?
Yes ___
No ___

Be active your way:
Children 6 to 17 years old should move **60 minutes** every day. Adults should be physically active at least **2½ hours** per week.

Did you reach your target?
Yes ___
No ___

* This 2,200-calorie pattern is only an estimate of your needs. Monitor your body weight and adjust your calories if needed.

DGA Dietary Guidelines for Americans

FNS-904-26
July 2021
USDA is an equal opportunity provider, employer, and lender.

20. Copy of Carbohydrate Analysis Form

(1)

RISK ASSESSMENT PROJECT
CARBOHYDRATE ANALYSIS
Completed by Dental Hygiene Student

Form of Sugar	When Sugar was Eaten	Day #1	Day #2	Day #3	
Liquid (Soda, sugar in coffee, etc.)	With meals	2 Coffee creamers			2
	Between meals		1 coffee creamer	1 coffee creamer	2
Solid (Candy, Cookie, Pastry, etc.)	With meals	1 chocolate chip cake,			1
	Between meals	1 Ghirardelli chocolate	1 dark chocolate bar	1 dark chocolate bar	3

Grand total # of exposures* = 4 (Sugar in Liquid form)

Grand total # of exposures* = 4 (Sugar in Solid form)

*One exposure for cariogenic food that was eaten within 20 minutes.
If food was consumed over 20 minutes and less than 40 minutes, it counts as two exposures.

# of Liquid exposures (4) x 20 minutes = 80 divided by 3 days
= ≃27 minutes
Average Daily Acid production below 5.5 pH

# of Solid exposures (4) x 40 minutes = 160* divided by 3 days
= ≃53 minutes
Average Daily Acid production below 5.5 pH

Carbohydrate
~~Nutrition~~ Analysis and Recommendations:

According to the carbohydrate analysis along with My Plate Plan, you have ≃160 minutes of acid exposure during your 3-day diet analysis. This means that you're exposing your oral cavity to carbohydrates, which places your teeth at a high caries risk. The recommendation is to decrease your solid carbohydrate intake such as chocolate, and drink, about 4 to 6 cups of water a day. The goal is to place your teeth at a low caries risk.

YOU CAN DO IT!!!
☺

21. Copy of the 8 Human Needs Form

Protection from health risks	OHI recommendations to protect the oral cavity from disease (gingivitis) and progression (periodontitis).
Freedom from fear and stress	Oral habits such as parafunctional (nocturnal bruxism) and nutritional (decrease carbohydrate and starch intake).
Freedom from pain	Brushing, flossing, xylitol gum and antimicrobial mouthwash. Allows pain to be controlled by anesthetic methods such as local anesthesia, N_2O sedation, Oraquix and topical benzocaine.
Wholesome facial image	The appearance of teeth and smile. Be confident and positive in their smile and how white the tooth looks like according to the client's preferences.
Skin and mucous membrane integrity of head and neck	Reduction of plaque biofilm accumulation and gingival inflammation.
Biologically sound and functional dentition	Free from incipient carious lesions
Conceptualization and problem solving	Ask client open ended questions and if they have any questions, which allows them to openly express any concerns freely.
Responsibility for oral health	Client is responsible for performing reviewed OHI at home in order to control plaque biofilm formation. A 6 month recall maintenance benefits gingivitis clients.

22. Copy of the first 3 pages of all primary, professional journal articles used for this project. *The copy of just the first page is not allowed!*

Received: 11 February 2019 | Revised: 27 May 2019 | Accepted: 28 July 2019

DOI: 10.1002/hpja.283

LONG RESEARCH ARTICLE

Health Promotion Journal of Australia

WILEY

A Markov cost-effective analysis of biannual fluoride varnish for preventing dental caries in permanent teeth over a 70-year time horizon

Tan Minh Nguyen BOralHlth, GCertDentThrpy, MPH, MSc, (Clin, Ed)[1,2] | Utsana Tonmukayakul BDS, MPH, MHEcon[1] | Emma Warren MA(Econ), BSc[3] | Susan Cartwright BDS, Dip, Clin, Dent, M, Ed, (Hons)[4] | Danny Liew MBBS(Hons), BMedSc(Hons), FRACP, PhD, GCertHealthEcon[5]

[1]Deakin Health Economics, Institute of Health Transformation, Faculty of Health, Deakin University, Waurn Ponds, Vic., Australia

[2]Melbourne Dental School, The University of Melbourne, Melbourne, Vic., Australia

[3]Hera Consulting, Balmain, NSW, Australia

[4]Colgate-Palmolive Company, Sydney, NSW, Australia

[5]Nursing and Health Sciences, School of Public Health & Preventive Medicine, Faculty of Medicine, Monash University, Clayton, Vic., Australia

Correspondence
Tan Minh Nguyen, Deakin Health Economics, Institute of Health Transformation, Faculty of Health, Deakin University, Waurn Ponds, Vic., Australia.
Email: tan.nguyen@deakin.edu.au

Funding information
Colgate-Palmolive Company

Abstract

Issue addressed: Biannual application of fluoride varnish is effective for dental caries prevention, but its cost-effectiveness using quality-adjusted life years (QALY) is unknown. This study performed a cost-effectiveness analysis, from the Australian health care system perspective of biannual application of fluoride varnish versus current practice (non-routine application) for an individual aged 15 years and older over a 70-year time horizon.

Methods: Health outcomes measured were the number of prevented decayed, missing, and filled teeth (prevented-DMFT) and QALY gained. The calculated incremental cost-effectiveness ratio (ICER) was compared against the reference cost-effectiveness ICER threshold of AUD$28 033 per QALY gained. A published Markov model capturing dental caries progression of eight permanent molars was used. This 6-monthly cycle model represented ten possible health states for an individual tooth. A 5% discount rate was applied with relevant sensitivity analysis.

Results: In the base-case scenario, the net cost for the intervention was $3600 compared to $2303 in the current practice arm. The intervention arm yielded 13.99 DMFT and 15.44 QALY gained, whereas the current practice arm yielded 15.52 DMFT and 14.74 QALY gained. The estimated ICER was $849 per prevented-DMFT and $1851 per QALY gained. Sensitivity analysis shows the ICER ranged from $424-$1807 per prevented-DMFT and $1851-$3941 per QALY gained.

Conclusion: Biannual professional application of fluoride varnish appears to be a highly cost-effective strategy and should be considered for universal funding in Australia's health care system.

Summary

Biannual application of fluoride varnish is efficacious at preventing dental caries among children, but its cost-effectiveness in terms of health outcomes is unknown.

This study performed a cost-effectiveness analysis, from the perspective of the Australian health care system. The study demonstrated the intervention is likely to be highly cost-effective.

KEYWORDS

cost-benefit analysis, dental care, dental caries, fluorides, primary health care

1 | INTRODUCTION

Dental caries in permanent teeth is highly prevalent among Australian children. By age 12-14 years, approximately 38% of children will have had some level of caries experience; 15% have untreated dental caries.[1] The cost to surgically manage dental caries is expensive and ranges from simple restorations to more complex procedures, including crowns, root canal treatment and tooth extractions, which could lead to tooth replacement prosthetics such as dental implants, bridge and dentures.

Biannual application of fluoride varnish to teeth can prevent dental caries development and progression. Fluoride varnish enhances the remineralisation process of early caries lesions in combination with calcium and phosphate ions, resulting in mineral formation that makes enamel and dentine more resistant to acid challenge.[2] A Cochrane systematic review and meta-analysis found that fluoride varnish has caries inhibiting efficacy in both permanent and primary teeth of children and adolescents, compared to no treatment.[3] This finding was supported by a more recent review that found benefits for the intervention across all ages.[4]

Despite established efficacy, professionally applied fluoride varnish has not had widespread practice.[5,6] In countries with community water fluoridation such as Australia, the Republic of Ireland and the US, fluoride varnish is recommended for elevated caries risk, whereas in countries with limited or no water fluoridation such as England and Scotland, fluoride varnish is recommended for all children and young adults.[7] The Australian fluoride guidelines state that "fluoride varnish should be used for people who have elevated risk of developing caries."[8]

Fluoride varnish is funded under the Child Dental Benefits Scheme (CDBS) for eligible children aged between 2 and 17 years, state/territory public dental services, and in part through the subsidised private health insurance rebate scheme. The CDBS is a federal dental program that provides up to AUD$1000 worth of dental care over 2 years. In Europe, Scandinavia and Canada, professionally applied fluoride varnish is publicly funded for susceptible individuals.[3] In the US, most states reimburse applications of fluoride varnish provided by primary health care medical providers for young children in addition to those provided in dental settings.[9]

Australian-based economic evaluations of preventive oral health interventions are limited.[10,11] Most report using the common dental caries outcome measure: the decayed, missing and filled teeth (DMFT) index.[10] Only one study reported outcomes using disability-adjusted life years,[12] whereas another study of school-based dental check-up program reported outcomes using prevented-DMFT, quality-adjusted tooth years, and per 1% cardholder reached, which is a generic measure for incorporating health inequity.[13] Using dental-specific outcome measures for dental interventions or programs do not enable comparability with non-dental interventions, which is important when considering health investment by policy decision-makers. Therefore, the present study will expand on this area of knowledge by translating dental health outcomes into a common general health outcome measure: quality-adjusted life years (QALY).

This paper aimed to perform a cost-effectiveness analysis of biannual professional application of fluoride varnish in the permanent teeth for an individual aged 15 years and older, compared against the current practice (non-routine application) from the Australian health care system perspective. Cost-effectiveness was assessed against the Australian government reference incremental cost-effectiveness ratio (ICER) threshold of AUD$28 033 per QALY gained.[14]

2 | METHODS

This study is based on data from previously published literature and publicly available information. Therefore, ethics approval was not required and conducted according to the principles of the Declaration of Helsinki.

2.1 | Economic evaluation

Two models were used, namely a decision tree and a Markov model. The decision represented the overall mean costs and benefits of both biannual fluoride application (intervention) and current practice (comparator). The Markov model was adapted from a published model that was used to assess the cost-effectiveness of an oral health intervention.[15] This Markov model simulates the progression of dental caries of eight permanent molars.[16] A previous study reported that only 79% of children aged 13 years had all four second permanent molars erupt.[17] Therefore, the hypothetical cohort aged 15 years was determined at baseline because all eight permanent molars would have fully erupted. The Markov model represented ten mutually possible health states of a single molar that could happen within 6 months (Table 1). The Markov model ran until every individual reached the age of 85 years or died from background mortality.[18]

TABLE 1 The unit cost and utilities associated with the health states

Markov state	Unit cost ($)	DMFT	Utilities
No disease	0	0	1.00
Enamel decay	0	0	1.00
Dentine decay	0	1	0.24
Filling	203	1	0.77
Repeat filling	203	1	0.77
Root canal	883	1	0.77
Crown	1547	1	0.77
Extraction	194	1	0.56
Bridge	2710	1	0.77
Implant	5316	1	0.77

Abbreviation: DMFT, decay, missing and filled teeth.

Different percentages were assigned to each transition state as follows: no decay (82.7%), enamel caries (2.5%), dentine caries (0.3%), first time filled (3.6%), repeated filling (0%), root canal (0%), crown (0%), missing (10.9%), bridge (0%) and dental implant (0%).[16] Within the 6-month cycle, a single molar has a chance to move from one health state to another. This chance for moving between health states is known as transitional probabilities, which were adapted from previous studies.[15,16,19] Consistent with the relevant literature, the incidence of dental caries was assumed to be constant.[16,20–22] Transition probabilities for subjects aged 76-85 years was extrapolated as for individuals aged 75.

The original Markov model was developed for current practice, and the transition probabilities were based on the second largest Australian private health insurer dental service claims data between 2004 and 2007.[16] The prevented fraction of biannual application of fluoride varnish was used to adjust relevant transition probabilities for the intervention.

The pooled decayed, missing and filled surfaces (DMFS) prevented fraction was 43% (95% CI 30%, 57%).[3] Using the prevented fraction, the transition probabilities in the fluoride varnish group moving from "No disease" to "Enamel caries," and from "Enamel caries" to "Dentine caries" were modified. However, once a molar progressed to the "Filling" health state, it was assumed that fluoride varnish did not have a clinical benefit. The long-term efficacy of fluoride varnish was assumed to be constant, as was assumed in previous work.[15,16] The DMFS prevented fraction was converted to the DMFT prevented fraction, which enabled calculations to derive QALY gained.[16]

2.2 | Costs

Unit costs were based on the 2014 Australian Dental Association fee survey.[16] No ongoing background costs were assumed for any health state. The cost of the intervention incurred was $37.70 per 6-month cycle assuming all other resources were the same in the intervention and comparator groups, with different transition probabilities to represent the clinical practice of the two options. While "Repeat filling" can be more expensive than "Filling," there is no epidemiological evidence to inform what the future costs for "Repeat filling" would be. Therefore, the minimum cost for "Repeat filling" was assumed to be the cost as for "Filling" (the first time the tooth was restored).

2.3 | Outcomes

The calculated prevented-DMFT (the DMFT difference between the intervention and comparator) was used to estimate QALY gained by multiplying the utility weight to the number of years stayed in that particular health state. The Australian population utility weights were applied to derived QALY for each molar according to the tooth health state (Table 1).[23,24] The QALY for an individual was calculated as the average QALY of eight molars.

2.4 | Discounting

A discounting rate of 5% per annum was applied to both costs and outcomes including 0% and 3.5% discount rates according to the Australian guidelines of the Pharmaceutical Benefits Advisory Committee (PBAC).[25]

2.5 | Scenario analysis

To assess the robustness of the economic evaluation analysis, we undertook a series of analyses by replacing the mean prevented caries fraction of biannual fluoride varnish with its upper and lower 95th percentile. Three scenarios were considered:

- Scenario 1 Clinical efficacy for fluoride varnish to reduce dental caries from "Dentine caries" and "Fillings";
- Scenario 2 Clinical efficacy expanded to "Fillings" and "Repeat fillings" in addition to "Dentine caries" and "Fillings";
- Scenario 3 Costs of two fluoride varnish applications in each 6-month cycle to quantify the plausible efficacy of quarterly fluoride varnish applications if required.

The model was performed using Microsoft Office Professional Plus 2016 Excel (Microsoft Corporation).

3 | RESULTS

3.1 | Base-case analyses

The results of the base-case analysis are summarised in Table 2. In total, the model predicted that an individual in the comparator would incur the mean cost of AUD$2303, whereas an individual in the intervention would incur the mean cost of AUD$3600 (95% CI 3483; 3671), inclusive of the AUD$1465 costs for the intervention over the 70-year time horizon. The individual in the comparator was predicted to have had yielded 15.52 DMFT and 14.74 QALY gained.

Baskaradoss *BMC Oral Health* (2018) 18:172
https://doi.org/10.1186/s12903-018-0640-1

BMC Oral Health

RESEARCH ARTICLE Open Access

Relationship between oral health literacy and oral health status

Jagan Kumar Baskaradoss

Abstract

Background: Health literacy has been found to be a strong predictor of an individuals' health, health behavior and health outcomes. Lower literacy has been linked to problems with the use of preventive services, delayed diagnoses of medical conditions, poor adherence to medical instructions, poor self-management skills, increased mortality risks, poor health outcomes, and higher health care costs. The aim of this study is to determine the relationship between oral health literacy (OHL) and oral health status among patients attending a University-affiliated dental clinic.

Methods: A convenience sample of participants was drawn from the dental patients presenting at School of Dental Medicine (SODM), Case Western Reserve University (CWRU). Information about the subjects' demographic details, income, family size, insurance type and smoking history were collected using a data collection form. Data about the patients' periodontal and caries risk assessment, caries experience and periodontal status was extracted from the patients' electronic dental records. The Comprehensive Measure of Oral Health Knowledge (CMOHK) was used to record the oral health literacy. The median CMOHK score was 18, and this was used to categorize the sample into limited OHL (≤18) and adequate OHL (> 18) groups. A multivariate logistic regression model was built to examine the associations between the various independent variables and OHL levels.

Results: Data of 150 respondents were analyzed. More than half of the participants were female (55.3%) and the majority were Caucasian (60%). The average age of participants was 53.3 years [standard deviation (SD) 16.8]. Higher percentage of African Americans and individuals with low education had limited OHL levels ($p < 0.05$). The mean decayed, missing, and filled teeth (DMFT) score for this population was 7.33 ± 2.68. Subjects with limited OHL had significantly higher mean values for missing teeth ($p < 0.05$) and lower mean values for filled teeth ($p < 0.05$) as compared with subjects with adequate OHL Significantly, higher percentage of subjects with limited OHL had severe periodontitis as compared with those with adequate OHL ($p = 0.04$). Multivariate analysis found that the periodontal status was significantly associated with the OHL scores ($p = 0.015$).

Conclusion: Subjects with limited OHL levels had poorer periodontal health. Improving the OHL of patients may help in the efforts to improve the adherence to medical instructions, self-management skills and the overall treatment outcomes. Future research could focus on assessing the impact of OHL interventions on the oral health, which could be valuable for clinical practitioners.

Keywords: Dental caries, Oral health, Literacy, Health literacy, Periodontitis, Periodontal disease

Correspondence: drjaganb@gmail.com
Division of Dental Public Health, Department of Developmental and Preventive Sciences, Faculty of Dentistry, Kuwait University, P.O.Box: 24923, -13110, Safat, Kuwait

Background

Health literacy is "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions [1]." This includes the ability to read and understand written text, to effectively communicate health-related information, to navigate the healthcare system and to attain and maintain good health.

An individual's health literacy capacity is mediated by education, and its adequacy is affected by culture, language, and the characteristics of health-related settings. Health literacy has been found to be a strong predictor of an individuals' health, health behavior and health outcomes [2, 3]. Limited health literacy is associated with poor self-ratings of health, poor adherence to medical instructions, poor self-management skills, increased mortality risks, poor health outcomes, and higher healthcare costs [4–6]. In the US, the National Assessment of Adult Literacy Survey reported that nearly half (43%) of adults in the United States (U.S.) are at risk for low literacy [7]. Health literacy is now recognized as an underlying cause of health disparities and has become a national health priority [8, 9]. World Health Organization's (WHO's) 7th Global Conference on Health Promotion also list's health literacy as one of the five key tracks for promoting health [10] Oral health literacy (OHL) has gained prominence in the dental literature in the last decade. Similar to health literacy, OHL has also proved to be critical in reducing oral health disparities and in promoting oral health [11]. Individuals with limited OHL were reported to be at higher risk for oral diseases and the problems related to those diseases [12]. Lower literacy has been linked to problems with the use of preventive services, delayed diagnoses of medical conditions, poor adherence to medical instructions, poor self-management skills, increased mortality risks, poor health outcomes, and higher health care costs [5]. Baskaradoss [13] found that people with poor oral health literacy are more likely to have missed dental appointments. Non-adherence to dental recommendations has been reported to cause higher caries experiences [14] and poor periodontal status [15]. Several publications from the Carolina Oral Health Literacy (COHL) study [16], have highlighted the important role played by OHL in influencing health behaviors and health outcomes [16–19]. In a large cross-sectional survey conducted at two university-based dental clinics in the United States, Multi-site Oral Health Literacy Research Study (MOHLRS), reported that about one-fifth (18%) of the participants had "low" conceptual knowledge [20]. Ju et al. [21] conducted an interventional study among Indigenous Australian adults, where context-specific oral health literacy intervention was successful in improving the oral health literacy-related outcomes.

The relationship between OHL and health outcomes has been explained by Macek et al. through their conceptual model [22]. A person's health is a consequence of the health related decisions made by them, which in turn is influenced by health literacy, modulated by the various sociodemographic factors. According to the conceptual model, health determinants such as income, education and personal characteristics influence health behaviors and oral health outcomes.

The purpose of this study was to explore the relationship between OHL and oral health status among patients attending a University-affiliated dental clinic.

Methods

A convenience sample of participants was drawn from patients of record presenting at School of Dental Medicine (SODM), Case Western Reserve University (CWRU), Ohio, USA, from February through April of 2015. Written informed consent and Health Insurance Portability and Accountability Act (HIPAA) consent forms were obtained for study participation. The research was conducted in accordance with the World Medical Association Declaration of Helsinki and approved by the CWRU Institutional Review Board (IRB) (Protocol number: IRB-2014-1003).

This study included African-American or Caucasian patients who were at least 18 years old and had the ability to provide informed consent to participate in the study. Patients who required emergency care were excluded from the study. A single trained investigator collected the data. The subjects were informed that their participation was voluntary and were assigned a separate scheduled cubicle for completing the questionnaires. Information about the subjects' demographic details, income, family size, insurance type and smoking history were collected using a data collection form. Data about the patients' periodontal and caries risk assessment were extracted from the patients' electronic dental records. The caries and periodontal charting and risk assessments are routinely performed for all patients and are based on the risk assessment–based individualized treatment model. The components of this risk assessment were published previously [23]. Indicators for dental caries were calculated based on the number of decayed, missing, and filled teeth (DMFT) as proposed by Klein et al [24]. Proximal caries was confirmed using radiographs, which are routinely taken for all the patients.

This study focused on patients with periodontitis as defined by the Centers for Disease Control and Prevention (CDC) [25], which defines disease as following: Severe Periodontitis: ≥2 interproximal sites with CAL ≥6 mm (on more than one tooth) and ≥ 1

interproximal site with PD ≥5 mm; Moderate Periodontitis: ≥2 interproximal sites with CAL ≥4 mm(on more than one tooth) or ≥ 2 interproximal sites with PD ≥5 mm (on more than one tooth); Healthy or Mild Periodontitis: neither "moderate" nor "severe" periodontitis. The Comprehensive Measure of Oral Health Knowledge (CMOHK) was used to record the oral health literacy of the respondents [22].

Previous studies on OHL in a similar University hospital setting have established the minimum sample size of 102 to detect enough power at $\alpha = 0.05$ [15, 26]. Therefore, a sample size of 150 in this study was considered adequate. The responses were entered into the Statistical Package for the Social Sciences (SPSS 22.0; SPSS Inc., Chicago, IL, USA) for Windows. Exploratory analyses were performed to examine the distributions of the data and to identify outliers and missing data. Bivariate analyses were used to explore the associations between each of the covariates and OHL via Pearson's χ^2 statistics for categorical variables and Mann-Whitney U Test for continuous variables. The missing values for some of the variable were imputed using mean substitution method.

The CMOHK scores were negatively skewed and hence, nonparametric analyses were performed. A multivariate logistic regression model was built using the 'Enter' method to examine the associations between the demographic characteristics, dental risk factors, oral health indicators and OHL levels. The median CMOHK score was 18, and this was used to categorize the sample into limited OHL (≤18) and adequate OHL (> 18) groups.

Results

Of the 174 patients invited for this study, 7 refused to participate, and 17 provided incomplete responses that were discarded. Therefore, the data from 150 respondents were included in the analysis. More than half of the participants were female (55.3%) and the majority were Caucasian (60%). The average age of participants was 53.3 years [standard deviation (SD) 16.8]. Table 1. shows the socio-demographic characteristics of the participants. More than a quarter (26%) of the participants had finished high school or received a General Equivalency Diploma (GED) or less, 34% had attended or completed community college, 29.3% had attended or

Table 1 Distribution of Socio-demographic variables by OHL levels

Variables	All Subjects N (%)	Low OHL (<=18) N (%)	High OHL (> 18) N (%)	*p*-value*
Mean age ± SD	53.3 ± 16.8	54.8 ± 16.7	50.8 ± 16.8	0.79†
Gender				
Male	67 (44.7)	44 (47.8)	23 (39.7)	0.327
Female	83 (55.3)	48 (52.2)	35 (60.3)	
Race				
African-Americans	59 (39.3)	42 (45.7)	17 (29.3)	0.046
Caucasians	91 (60.7)	50 (54.3)	41 (70.7)	
Education				
High school graduate/GED or less	39 (26.0)	34 (44.6)	5 (8.6)	0.004
Some college or technical degree	51 (34.0)	28 (30.4)	23 (39.7)	
College degree	44 (29.3)	23 (25.0)	21 (36.2)	
Professional degree	16 (10.7)	7 (7.6)	9 (15.5)	
Payment Type				
Public/Private insurance	88 (58.7)	57 (62.0)	31 (53.4)	0.303
Out-of-pocket	62 (41.3)	35 (38.0)	27 (46.6)	
Socio-economic Status				
Below FPL	39 (26.0)	29 (31.5)	10 (17.2)	0.052
Above FPL	111 (74.0)	63 (68.5)	48 (82.8)	
Marital Status‖				
Single	47 (35.9)	31 (38.3)	16 (32.0)	0.46
Married	78 (59.5)	45 (55.6)	33 (66.0)	
Divorced/widow	6 (4.6)	2 (6.1)	4 (2.0)	

FPL Federal poverty level, *GED* General equivalency diploma, *OHL* Oral health literacy; *Chi-squared test; †Independent samples T-Test; ‖Presence of missing values

Research Reports: Clinical

Flossing Is Associated with Improved Oral Health in Older Adults

Journal of Dental Research
2020, Vol. 99(9) 1047–1053

DOI: 10.1177/0022034520916151
journals.sagepub.com/home/jdr

J.T. Marchesan[1], K.M. Byrd[2], K. Moss[2], J.S. Preisser[3], T. Morelli[1], A.F. Zandona[4], Y. Jiao[1], and J. Beck[1]

Abstract

The effect of preventive oral habits is largely unexplored in older individuals. The purpose of this study was to evaluate the associations between home use of flossing and prevalence of periodontal disease and caries in older adults. Five-year incident tooth loss was also evaluated. Data on 686 individuals ≥65 y-old from the Piedmont 65+ Dental Study were examined including: 1) interproximal clinical attachment level (iCAL), 2) interproximal probing depth (iPD), 3) numbers of caries, and 4) missing teeth. Flossing behavior was evaluated according to the Periodontal Profile Class (PPC) system. Five-year follow-up data (n = 375) was evaluated for incident tooth loss. Dichotomous and categorical variables were analyzed using Pearson chi-square tests as well as covariate-adjusted Cochran-Mantel-Haenszel tests. Multiple linear regression compared clinical parameters based on flossing behavior. Elderly flossers had lower (mean, SE) %iCAL≥3 mm (38.2, 2.38 vs. 48.8, 1.56) and %iPD≥4 mm (8.70, 1.41 vs. 14.4, 0.93) compared to nonflossers ($P \leq 0.005$). Flossers showed less coronal caries compared to nonflossers ($P = 0.02$). Baseline number of missing teeth (mean, SE) was 11.5 (0.35) in nonflossers compared to 8.6 (0.53) in flossers ($P < 0.0001$). Regular dental visitors had lower oral disease levels compared to episodic dental users. The majority of flossers classified into PPC-Stage I (health) whereas nonflossers classified as PPC-Stages V, VI, and VII (disease). At the 5-y follow-up visit, the average tooth loss for flossers was ~1 tooth compared to ~4 teeth lost for nonflossers ($P < 0.0001$). Among all teeth, molars showed the highest benefit (>40%) for flossing behavior ($P = 0.0005$). In conclusion, the extent of oral disease for older individuals was significantly less in flossers than in nonflossers. Flossers showed less periodontal disease, fewer dental caries, and loss of fewer teeth over a 5-y period. These findings further support flossing as an important oral hygiene behavior to prevent oral disease progression in older adults.

Keywords: OHI, interdental cleaning, elderly, prevention, periodontal disease, caries

Introduction

With the world population aging, there is a growing focus on what constitutes health in older adult populations (World Health Organization 2015). Good oral health is considered a key factor in healthy ageing and is associated with improved general health, reduced morbidity and mortality in older adults (Holm-Pedersen et al. 2008; Tonetti et al. 2017). Since there is a consistent peak of severe tooth loss at the age of 65 over the past 2 decades, it is important to understand whether preventive oral hygiene regimens in older adults can improve oral health and tooth retention (Tonetti et al. 2017).

The key to promoting optimal oral health in older adults is to control its two most common diseases—periodontal disease and caries—which are chronic multifactorial diseases of which microbial biofilm are a fundamental etiology (Loe et al. 1965; Beck and Drake 1975; Listgarten et al. 1975; Hunt et al. 1992; Guggenheim et al. 2004; Socransky and Haffajee 2005; Curtis et al. 2011; Hajishengallis et al. 2012; Jiao et al. 2013; Teles et al. 2013; Takahashi 2015; Sanz et al. 2017). A change in the microbial communities (dysbiosis) of the tooth-adherent dental plaque is consistently related to the progression from oral health to disease (Feres et al. 2016; Sanz et al. 2017). Therefore, the mechanical disruption of microbial biofilm's adherence to the tooth by toothbrushing and interdental cleaning is recommended as part of home care (Jepsen et al. 2017).

There is a need for epidemiological surveillance of oral disease and tooth loss in older populations (Tonetti et al. 2017). We and others have previously addressed the challenges of conducting randomized clinical trials to evaluate prevention of oral disease by flossing/interdental cleaning, which include a)

[1]Department of Comprehensive Oral Health, Adams School of Dentistry, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
[2]Department of Oral and Craniofacial Health Sciences, Adams School of Dentistry, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
[3]Department of Biostatistics, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
[4]Department of Comprehensive Care, School of Dental Medicine, Tufts University, Boston, MA, USA

A supplemental appendix to this article is available online.

Corresponding Author:
J.T. Marchesan, Department of Comprehensive Oral Health, Periodontology, Adams School of Dentistry, University of North Carolina at Chapel Hill, 3506 Koury Oral Health Sciences Building, Campus Box #7455, Chapel Hill, NC 27599-7455, USA.
Email: julie_marchesan@unc.edu

ethical reasons of assigning individuals into a nonflossing regimen, b) amount of time required for the development of caries and periodontal disease, and c) funding issues to support this type of study (Vernon et al. 2017; Vernon and Seacat 2017; Marchesan et al. 2018). Randomized controlled trials (RCTs) are often expensive and some fail to generate useful evidence for clinical practices (Mc Cord et al. 2018). Other types of studies that are used to measure the effectiveness of an intervention include observational studies that represent non-experimental "real world" scenarios at the population level (Anglemyer et al. 2014). Previous evaluations by our group of available cross-sectional data from the National Health and Nutrition Examination Survey (NHANES 2011–2012 and 2013–2014) showed that interdental cleaning was associated with less oral disease, including caries, periodontal disease parameters, and number of teeth (Marchesan et al. 2018). While this study evaluated a large number of individuals (n = 6,891), it did not provide longitudinal information. In addition, the NHANES study surveys adults aged over 30 y of age, with a mean age of ~50 y of age (Marchesan et al. 2018) and does not directly address older individuals who live in the community. In children, professional flossing done for 1.7 y reduced the risk for developing caries by 40% (Hujoel et al. 2006), and recent analysis of multiple RCTs showed that the usage of floss—in addition to toothbrushing—in adults may reduce gingivitis or plaque compared to brushing alone at 1, 3, and 6 mo (Worthington et al. 2019). This emerging evidence further supports flossing as an effective intervention for reducing the burden of oral disease.

The purpose of this study was to evaluate the associations between home use of flossing and prevalence of periodontal disease and caries in older adults. Five-year incident tooth loss was also evaluated. We hypothesized that elderly individuals who flossed had improved oral health and lost less teeth over a 5-y period when compared to nonflossers. In this present study, we accessed longitudinal data available from the Piedmont 65+ Dental Study (Dental PDS) that collected data from individuals aged ≥65 y over a 5-y period. We evaluated if flossing, in addition to tooth brushing, was associated with a) less periodontal disease, b) fewer coronal and interproximal caries, and c) fewer teeth lost over a 5-y period when compared to brushing alone.

Methods

The Piedmont Health Study of the Elderly is the parent study of the Piedmont 65+ Dental Study (Dental PDS) and was a cohort of the health status of a random sample of non-institutionalized people aged ≥65 in five contiguous North Carolina counties (Brown et al. 1994; Beck et al. 1997). In 1988 the University of North Carolina initiated Dental PDS from the parent population, which selected a random sub-sample stratified on dentate status and race. The study conforms to STROBE guidelines. Dental examinations and interviews were conducted in the home (private residence) of the participants by one of five calibrated examination teams composed of a dentist-examiner and a recorder. Dental examinations were conducted at baseline (1988) and at 5 y (1993) using the same methodology. Detailed descriptions of the study sampling methods are published elsewhere (Graves et al. 1992; Drake et al. 1994). Clinical measurements (probing depth and clinical attachment level) were evaluated at the mesial-buccal and buccal region of all present teeth (up to 32 teeth). A total of 686 individuals were evaluated based on the available clinical data: percent of sites with interproximal clinical attachment levels (iCAL)≥3 mm, percent of sites with interproximal probing depth (iPD)≥4 mm, number of coronal and interproximal caries (unfilled), number and type of lost teeth in a 5-y period. A PD≥4 mm and a CAL≥3 mm were selected based on previous studies using these as variables for periodontal pathologic features, including our previous study that evaluated the interdental cleaning behavior of NHANES participants (Moss et al. 2009; Akinkugbe et al. 2017; Marchesan et al. 2018).

To evaluate the influence of the behavior on current periodontal disease classification systems, we used the PPC-Stages classification developed at the University of North Carolina at Chapel Hill (Morelli et al. 2017; Beck et al. 2018; Morelli et al. 2018). The PPC-Stages classification is based on number of teeth, crowns, probing depth, clinical attachment level, bleeding on probing, plaque index, and gingival index that are imputed into an algorithm and classify individuals into 7 categories [from PPC-Stage I (Health) to Stage VII (Severe tooth loss)] (Morelli et al. 2017; 2018). Information for decayed, interproximally decayed, and missing teeth was evaluated for 686 individuals. Longitudinal information on the number of teeth at 60-mo (5-y) was utilized for the tooth loss analysis (n = 375).

Flossing exposure was assessed based on the question: "Do you use dental floss? How often?". The following answers were given as options: Answer: "A) Not at all, B) Daily (7 times per week), C) Several times per week (2 to 6 times), D) One time per week, E) Less often than once per week". Individuals were divided into 2 main categories of nonflossers (response A) Not at all) and flossers (responses B–E).

Dental utilization (dental treatment) was assessed based on the following question: "Would you say that you use a dentist on a regular basis, or do you only go when you are in discomfort or when you need something fixed?". The answers given as options were: "A) Regular basis, B) Only when in discomfort, C) When something needs to be fixed, D) Don't go to the dentist". Individuals were divided into 2 categories of regular users (response A) Regular basis) and episodic (responses B–D).

Statistical Analysis

Pearson chi-square tests were used to compare demographic variables between flossers and nonflossers. Multiple linear regression adjusted for race, sex, age, diabetes, smoking, education, brushing, and dental utilization was used to compare clinical parameters based on flossing behavior. Sensitivity

Table 1. Demographics According to Flossing Behavior ($n = 686$).

	Nonflossers	Flossers	*P* Value
Age, y, mean (SD)	73.6 (5.9)	72.3 (5.0)	0.002
African American	315 (68.2)	64 (28.6)	<0.0001
Caucasian	147 (31.8)	160 (71.4)	
Female	247 (53.5)	153 (68.3)	0.0002
Male	215 (46.5)	71 (31.7)	
Diabetics	92 (20.0)	27 (12.1)	0.01
Nondiabetic	369 (80.0)	197 (88.0)	
Smoker	93 (20.1)	41 (18.3)	0.57
Nonsmoker	369 (79.9)	183 (81.7)	
Basic Education	395 (85.9)	109 (48.7)	<0.0001
Intermediate Education	29 (6.3)	44 (19.6)	
Advanced Education	36 (7.8)	71 (31.7)	
Episodic dental utilization	362 (80.8)	49 (21.9)	<0.0001
Regular dental utilization	86 (19.2)	175 (78.1)	

Data are presented as *n* (%) unless otherwise indicated.

analysis was done to account for individuals who were lost to follow-up at the 5-y visit. Five-year tooth loss models were weighted using the inverse of the predicted probability of being followed versus dropout using study demographics.

Results

Demographics and Clinical Characterization

The baseline demographics of the individuals included in the study varied by flossing behavior (Table 1). Mean age was slightly higher in nonflossers than flossers (73.6 vs. 72.3, $P = 0.002$). Compared to flossers, a higher percentage of nonflossers were African Americans, males, diabetic, had a basic education and infrequent dental visits. Conversely when compared to nonflossers, a higher percentage of flossers were Caucasians, females, non diabetic, with advanced education, and regular dental visits when compared to nonflossers (Table 1). Nonflossers had a greater tendency to be smokers than flossers, but the difference was not statistically significant ($P = 0.57$).

For the analysis at 5 y, 311 (45.3%) individuals were lost to follow-up. Younger individuals, females, and those with regular dental utilization were statistically significantly more likely to have completed the 5-y follow-up (Appendix Table 1). The most frequent reason that individuals did not complete the 5-y follow-up visit was death ($n = 121$, 38.9%; Appendix Table 2).

Flossing and Oral Disease

Our analysis shows that individuals identified as flossers demonstrated a statistically significant lower number of sites with interproximal clinical parameters of periodontal disease (iCAL≥3 mm, iPD≥4 mm; Table 2). In addition, individuals who flossed also had less coronal caries ($P = 0.02$) and a trend for fewer interproximal caries ($P = 0.06$, Table 2). Individuals who flossed also showed significantly lower numbers of missing teeth even when third molars were excluded ($P < 0.0001$).

Table 2. Clinical Parameters (mean, SE) of Periodontal Disease, Caries, and Number of Missing Teeth Stratified by Flossing Behavior ($n = 686$).

	Nonflossers	Flossers	*P* Value
iCAL≥3 mm (% sites)	48.8 (1.56)	38.2 (2.38)	0.0008
iPD≥4 mm (% sites)	14.4 (0.93)	8.70 (1.41)	0.002
Coronal caries (surfaces)	1.16 (0.10)	0.66 (0.16)	0.02
Interproximal caries (surfaces)	0.56 (0.06)	0.35 (0.08)	0.06
Missing teeth (*n*)	14.7 (0.38)	11.8 (0.58)	0.0001
Missing teeth (*n* excluding third molars)	11.5 (0.35)	8.6 (0.53)	<0.0001

Means adjusted for race, sex, age, diabetes, smoking, education, brushing, and dental utilization; *P* values based on multiple linear regression.
iCAL, interproximal clinical attachment level; iPD, interproximal probing depth.

Mean number of missing teeth excluding third molars in nonflossers was 11.5 (0.35) compared to 8.6 (0.53) in flossers (Table 2).

Table 3 stratifies the relationships from Table 2 by regular and episodic dental use. In general, episodic dental users have higher levels of disease than regular dental users. Table 3 indicates that periodontal parameters of iCAL and iPD were significantly lower only for flossers compared to nonflossers that were regular dental users, with a similar trend that did not reach statistical significance observed for episodic dental users. On the other hand, flossers who were episodic dental users had significantly fewer coronal carious lesions with a non significant similar trend for regular dental users. Interproximal caries surfaces did not show significant differences between flossers and nonflossers, but a strong trend favoring flossers was seen in episodic dental users (Table 3, $P = 0.06$). Flossing behavior favored numbered of teeth regardless of the dental utilization, with flossers having an additional ~2 teeth if they were episodic dental users and ~3.5 teeth if they were regular dental users (Table 3).

We then evaluated the distribution of individuals based on different periodontal disease classification systems and stratified these classes by flossing behavior. When comparing flossing behavior categories using the PPC-Stages classification system, flossers were more likely to be PPC-Stage I Health (Table 4). Nonflossers were more likely to be Stage V, VI, and VII of disease (Table 4).

Flossing and 5-y Tooth Loss

We evaluated the number of individuals that had lost teeth for each oral hygiene regimen group (flossers and nonflossers) during the 5-y period. The majority of individuals (regardless of their flossing habit) retained their teeth rather than losing one or more tooth, with a range of 58.6% to 91.9% individuals retaining their teeth between both flossing categories (Table 5). Overall, the percent of individuals retaining their teeth was significantly higher among flossers. This pattern was true when evaluating individuals retaining all incisors, canines, and

23. Copy of blank "written presentation of risk assessment project - grading rubric" as the last pages of report

RISK ASSESSMENT PROJECT
WRITTEN PRESENTATION OF RISK ASSESSMENT PROJECT
GRADING FORM - Spring 2023

Student Name: Bruna Rett **Date of Submission:** 05/23/2023

Advisor Name: Amanda de la Vega

Written Presentation Evaluation Criteria **PERIODONTAL SECTION (Evaluated by DH 308 Faculty)**	**3** Student accurately addressed each topic evaluated and/or required on the project guidelines. Student accurately correlated the findings with the evaluation criteria.	**2** Student did not properly address 1 or 2 of the topics evaluated and/or required on the project guidelines. - and / or - Student did not correlate the findings in 1 or 2 of the evaluation criteria.	**1** Student did not properly address more than 2 of the topics evaluated and/or required on the project guidelines. - and / or - Student did not correlate the findings in more than 2 of the evaluation criteria.	**0** Student did not properly address the topic(s) evaluated and/or required on the project guidelines. - or - Student did not correlate the findings with the evaluation criteria.
I. Patient Selection and Personal History • Age • Gender • Race / Ethnicity • Occupation • Marital status				
II-a. Medical History • Summary of patient's medical history - past and current • Family health history (conditions) • Review of Systems: Systemic conditions and their possible effects in the oral/periodontal health - (**Periodontal systemic factors**) • List of all current medications (include implications in dental and/or periodontal health / oral concerns) • Base line vital signs • BMI				
II-b. Medical History • Medical history correlation with ASA status				

III-a. Dental History • Extra- and Intra-oral exam and correlation • TMJ assessments and oral habits • Possible cultural / ethnic influencing factor				
III-b. Dental History • Dental exam Identification of possible carious lesion/fractures present, type of caries / restorations present (G.V. Black's Classification), and restorative dental material • Inlay, onlay, veneers, PFM's, bridges, ITR, other(s) • Dental implants • Current or Hx of orthodontic treatment				
IV-a. Clinical Examination (Pre-treatment) • Frequency of dental hygiene services • Hx of SRP • Hx of periodontal surgery • Teeth missing due to: orthodontics / caries / periodontal reasons / other(s)				
IV-b. Clinical Examination (Pre-treatment) • Evaluation of periodontal structures (gingival description, Gingival Index, MBI, PI (Plaque Control Record - PCR), PD, BOP, recession, CAL, furcation involvement, Mobility, DMFT) • WLAC Calculus code • Possible periodontal genetic component related to periodontal status				
IV-c. Clinical Examination (Pre-treatment) • Etiology • Local factors identified and recorded ○ Furcation involvement ○ Possible carious lesions ○ Faulty restorations ○ Anatomical factors ○ Malocclusion ○ Missing/shifted teeth ○ Other(s)				
V. Radiographic Examination (Pre-treatment): *FMX or Panoramic image and BWX/PAs set required*				

• Radiographic interpretation for periodontium and oral pathology: o RBL o Lamina dura o Alveolar crest (active bone loss / arrested / healthy) o Type of bone loss o Periodontal ligament space o Confirmation of local factors o Possible carious lesions o Condition of dental restorations o Periapical areas / pathology o Crown-to-root ratio				
VI. Periodontal Classification Stage and Grade - provide rationale				
VII. Treatment Plan Considerations, SRP, prophylaxis, number of appointments required to implement treatment plan, recommendation for Supportive Periodontal Therapy (Periodontal maintenance) / Recare routine				
Use of Proper Dental / Medical Terminology				
HIPAA Compliance	***Violation of the Health Insurance Portability and Accountability Act - Deduction of 15 Points***			
Not following Project Guideline and/or Rubric: Deduction of 15 Points				
SUBTOTAL FOR PERIODONTAL SECTION (Maximum points possible: 36)				
Written Presentation Evaluation Criteria **NUTRITION SECTION (Evaluated by DH 355 Faculty)**	**3** Student accurately addressed each topic evaluated and/or required on the project guidelines. Student accurately correlated the findings with the evaluation criteria.	**2** Student did not properly address 1 or 2 of the topics evaluated and/or required on the project guidelines. - and / or - Student did not correlate the findings in 1 or 2 of the evaluation criteria.	**1** Student did not properly address more than 2 of the topics evaluated and/or required on the project guidelines. - and / or - Student did not correlate the findings in more than 2 of the evaluation criteria.	**0** Student did not properly address the topic(s) evaluated and/or required on the project guidelines - or - Student did not correlate the findings with the evaluation criteria - or - **In the case of a SINGLE topic/evaluation:** topic/evaluation was not addressed or correlated with the evaluation criteria.

VIII-a. 3-Day Dietary Nutrition Report and Analysis (Pre-nutritional Counseling) • Calculation of Body Mass Index according to CDC.gov Adult BMI Calculator • Interpretation of BMI including weight status • Summary of first set of a detailed 3-day food diary (table allowed) - Includes daily caloric intake - Includes average time of physical activity or exercise • Summary of daily water intake/ daily source of hydration • Does patient take any vitamins, dietary or herbal supplements? **More details and instruction will be provided through nutrition course.*				
VIII-b. 3-Day Dietary Nutrition Report and Analysis (Nutrition) • Comprehensive description of USDA MyPlate Plan - Address whether patient would like to achieve a healthy weight or maintain their current weight o Annotates patient's current caloric intake vs. recommended amount o Annotates 5 food groups of the MyPlate Plan, limits, and activity o In which food groups does the patient fail to meet or exceeded the recommendations? o Identifies areas that require focus and nutritional counseling **More details and instruction will be provided through nutrition course.*				
VIII-c. 3-Day Dietary Nutrition Report and Analysis (Exercise) • Summary of Key Guidelines for patient according to Physical Activity Guidelines for Americans: - Restate whether patient would like to a achieve a healthy weight or maintain their current weight o Annotates patient's current amount of physical activity vs. recommended amount of aerobic activity **More details and instruction will be provided through nutrition course.*				

IX. Carbohydrate Analysis
• Carbohydrate analysis based on first set of first set of a detailed 3-day food diary (table allowed)
  ○ Calculate acid exposures for each day
  ○ Identifies fermentable carbohydrates (cariogenic vs. non-cariogenic)				

X. Relevant Patient Information as it Relates to Nutrition - 1 <u>Social History</u>: • Hours of work per week? Do the hours dictate odd eating hours? • Does the patient live alone? Who does the cooking? Who does the grocery shopping? • How often does the patient eat away from home? Does convenience play a factor? How often does this include "fast food"? • Does the patient prefer fast food or a home-cooked meal? • Is the patient a student? Does school affect when they eat? • How many meals and snacks per day?				
XI. Relevant Patient Information as it Relates to Nutrition - 2 <u>Special Dietary Considerations</u>: • Food allergies, intolerances, sensitivities (Gluten free, lactose free, peanuts, shellfish, etc.) • Dietary preferences: Keto, Vegetarian, Vegan, Paleo, Plant-based, etc. • Cultural influences • Religious influences • Systemic condition • Low carb, low fat, low calorie, low sodium, etc. • Nursing Compares Dietary Intake with <u>Dietary Guidelines for Americans, 2020-2025:</u> • Addresses Guidelines 1 • Addresses Guidelines 2 • Addresses Guidelines 3 • Addresses Guidelines 4 • Addresses other Special Considerations for Age Group				

XII. Relationship of Nutrition and Health • Correlates nutritional findings with systemic conditions • Correlates nutritional findings with dental carious lesions • Correlates nutrition with periodontal disease • Gives rationale				
XIII. Nutritional Counseling and Goals (Implementation) • After a thorough review of VIIIa.-XI. above, describe the customized dietary plan you designed for the patient - Addresses caloric intake - Addresses 5 food groups of MyPlate plan - Discusses exercise recommendations - Discusses water intake/daily hydration • Develops 3 goals for patient (diet, hydration, exercise) • Provides specific and realistic recommendations for patient				
XIV. Correlation of Findings and Nutritional Counseling and Goals • Dietary plan considers and/or addresses clinical findings • Dietary plan supports treatment plan • Dietary plan supports OHI recommendations • Dietary plan addresses patient's needs				
XV. 3-Day Dietary Nutrition Report and Analysis (Post-nutritional counseling) • Calculation of Body Mass Index according to CDC.gov Adult BMI Calculator • Interpretation of BMI including weight status • Summary of second set of a detailed 3-day food diary (table allowed) - Includes daily caloric intake - Includes average time of physical activity or exercise • Summary of daily water intake/ daily source of hydration • Does patient take any vitamins, dietary or herbal supplements? • Describes similarities and differences found between the first and second set of food diaries				

XVI. 3-Day Dietary Nutrition Report and Analysis (Nutrition) • Comprehensive description of new USDA MyPlate Plan - Address whether patient would like to continue to achieve a healthy weight or maintain their current weight o Annotates patient's current caloric intake vs. recommended amount o Annotates 5 food groups of the MyPlate Plan, limits, and activity o In which food groups does the patient fail to meet or exceeded the recommendations? o Identifies areas that require focus and additional nutritional counseling				
XVII. Additional Nutritional Counseling and New Goals • After a thorough review of XIV.-XV above, describe any changes/improvements to the customized dietary plan you previously designed for the patient - Addresses caloric intake - Addresses 5 food groups of MyPlate plan - Discusses exercise recommendations - Discusses water intake/daily hydration • Develops 3 new goals for patient (diet, hydration, exercise) • Provides specific and realistic recommendations for patient				
XVIII. Nutrition-based Recommendation Letter and OHI/Nutrition Pamphlet • Develops realistic nutrition-based recommendation letter • Letter is substantial, thorough, and addresses patient's needs • Develops customized OHI/Nutrition pamphlet for the patient • OHI/Nutrition pamphlet is substantial, thorough, and addresses patient's needs • Provides sample of OHI/Nutrition pamphlet				
			SUBTOTAL FOR NUTRITION SECTION (Maximum points possible: 39)	