 

**ORAL MEDICINE AND DIAGNOSTIC SCIENCES**

Departmental Philosophies

**Oral Medicine and Facial Pain Clinic**

Health Promotion, Oral Cancer Risk Assessment, Mucosal and Soft Tissue Lesions Assessment, Orofacial Pain Assessment and Referral

November 2019

Patients are evaluated and managed in the Oral Medicine and Facial Pain Clinic (OMFP) for a variety of soft tissue, TMD and facial pain disorders.

1. **Medical history and chief complaint assessment**

Initial visits to the OMFP clinic include a thorough review of systems as listed in the EPR. Patient conditions and medications must be documented in the EPR. Any changes in health history at periodic visits must be documented in the EPR.

1. **Oral cancer risk assessment**

*All patients must be evaluated to determine the risk of oral cancer, including smoking, smokeless tobacco use, alcohol use and human papilloma virus.*

Results of patient risk assessment must be documented in the electronic patient record (EPR).

**3. Extraoral and Intraoral soft tissue exam**

*All patients must be evaluated for soft tissue abnormalities whenever a patient reports for routine care (initial and periodic exams) in the OMFP Clinic.* Extraoral and *intraoral evaluation must be performed using a systematic, conventional visual and tactile examination (CVTE).*

The extraoral exam includes assessment of the facial skin, TMJs, thyroid gland, parotid glands and lymph nodes. The intraoral exam assessment includes the soft tissues of the oral cavity and oropharynx. Radiographic images may be ordered as needed for assessment. Use of adjunctive tolls (autofluorescence or vital staining) is not recommended and is not used in the Oral Medicine and Facial Pain Clinic.

**4. Positive Findings**

*Positive soft tissue findings must be described in the EPR according to site, morphology (elevated or flat), color, size and consistency and assessed.*

Patients with a clinically evident oral mucosal or soft tissue lesion considered to be suspicious of a potentially malignant disorder (PMD), must be referred to the appropriate specialty clinic for evaluation.

Patients with a clinically evident mucosal lesion with an identifiable cause should be managed by removal of the cause, if possible, a re-evaluation must follow in two to three months. If the lesion is still present, the patient must be referred to the appropriate specialty clinic for evaluation.

Biopsy proven chronic oral mucosal disorders are managed in OMFP by oral medicine faculty. Referral to a primary care physician for further evaluation/management as indicated by involvement of other parts of the body.

*Positive TMD findings must be described in the EPR.*

Patients with clinically evident joint pain and/or myofascial pain are managed in the OMFP Clinic by orofacial pain faculty, and referred to the appropriate specialty clinic for further evaluation when deemed necessary.

*Positive facial pain findings must be described in the EPR.*

Emphasis is made in OMFP Clinic of the role of the dentist in assessing and ruling out an odontogenic causeof facial pain. Upon confirmation of nonodontogenic facial pain, positive findings are managed in the OMFP Clinic by the orofacial pain faculty. Further evaluation by appropriate medical specialists may be deemed necessary and referral is made as indicated.

**5. Treatment**

Faculty manage treatment of diagnosed disorders in the OMFP Clinic including OTC recommendations and prescription therapies.

**6. Student Evaluation**

Students will challenge the Extraoral/Intraoral Soft Tissue Performance Exam after no less than two rotations in Oral Medicine and Facial Pain Clinic. They must successfully complete the performance exam by the end of their AS3/D3 year. Clinically unacceptable performance on the exam, will result in a meeting with an OMFP Clinic faculty member to identify a remediation strategy based upon the deficiency.

**RESOURCES:**

1. Evidence-based clinical practice guideline for the evaluation of potentially malignant disorders Lingen, Mark W. et al. The Journal of the American Dental Association, Volume 148, Issue 10, 712-727. e10

2. The American Dental Association Practical Guide to Soft Tissue Oral Disease. Kahn, Michael A., Hall, J. Michael. John Wiley and Sons, 2018.

3. Diagnosis and Treatment Planning in Dentistry, Stefanac, Stephan J., Nesbit, Samuel P. 2016.

4. Clinician’s Guide to Treatment of Common Oral Conditions, Seigel, Michael A. et al. American Academy of Oral Medicine, 8th Edition, 2017

**XEROSTOMIA MANAGEMENT**

**December 2019**

**Assessment and treating xerostomia:**

Acute or chronic dry mouth (xerostomia) may result from medications, mechanical blockage, dehydration, bacterial infections of the salivary glands, diabetes, anemia, connective tissue disorders, Sjogren’s syndrome, radiation therapy and certain congenital disorders.

Salivary proteins and mucins contribute to lubrication and protection of salivary tissues. Reduced salivary flow causes difficulty with swallowing and speaking, and can increase the chance of developing demineralization, decay and oral infections. Significant loss of gland function is associated with sense of taste alterations.

Diagnosis and management of xerostomia must be recorded in the EPR to confirm diagnosis and that these measures have been implemented. There must be periodic re-assessments to document the effects of the proposed interventions.

Measures include prescribing topical use of fluoride and recommendation of various Xylitol chewing gums or mints for patients with xerostomia. Salivary stimulants may be prescribed for patients with no medical contraindications.

D9630.1-Prevident 5000 Booster Plus

**Xerostomia Diagnosis:** Diagnosis of xerostomia includes: review of the patient medical history, risk assessment and changes in saliva.

* + **Detection of dry mouth:** Detection relies on an assessment of clinical findings, subjective findings and is supported by faculty experience and judgment.
  + **Detection methods:**

Visual inspection

* Saliva may be decreased in quantity and quality (may appear ropey)
* Soft tissue may be dry, pale or red and atrophic
* Tongue may be depapillated, atrophic, fissured and red
* Multiple carious lesions may be present or recent history of new restorations
* Patients with severe xerostomia may report difficulty swallowing food, due to lack of saliva to break down and coat.
* Other signs include mouth sores and hoarseness.

An assessment of the severity of dryness must be made for patients with xerostomia:

# Diagnostic criteria and guidelines for treatment decision

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| --- | --- |
| Diagnostic criteria | Suggested intervention |
| Mild Xerostomia | * OTC recommendations * If medication effect consider referral to PCP for evaluation for a less drying medication |
| Moderate Xerostomia | * OTC recommendations * If medication effect consider referral to PCP for evaluation for a less drying medication * Consider prescribing sialogogue (pilocarpine, cimvemoline) |
| Severe Xerostomia | * OTC recommendations * If medication effect consider referral to PCP for evaluation for a less drying medication * Prescribe sialogogue (i.e.pilocarpine) |

**Management / treatment of disease**

* + The cause of the disease (etiology) must be evaluated.
  + Proper patient care and treatment is based on individual assessment.
  + Patients should be counseled on tips for relieving dry mouth:  
    - sipping water or sugarfree drinks
    - avoiding caffeinated drinks
    - melting ice chips in their mouth
    - using lip lubricants (Lanolin HPA, Kiehls lip balm) frequently
    - using sugar-free gum or sugar-free candy
    - avoiding sticky, sugary foods
    - avoiding alcohol and mouth rinses with alcohol
    - avoiding tobacco and marijuana
    - drinking fluids that contain fat (almond milk, whole milk) when eating a meal
    - using a humidifier at night
  + Pilocarpine prescription sample:

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| Rx: **Pilocarpine 5mg**  Disp: 90 (ninety) tablets  Sig: Take one tablet TID (maximum daily dose is 30g)  Contraindicated in patients with glaucoma. Caution in patients with cardiac and lung diseases) |

Xerostomia - Rationale and Recommendations for Treatment

Adapted from American Academy of Oral Medicine recommendations guidelines, 2017.

American Dental Association Oral Health Topics: Xerostomia, 2017

# UIC College of Dentistry required textbooks: Oral Pathology

# Neville, et al. Oral and Maxillofacial Pathology, 4th edition.

**CANDIDIASIS MANAGEMENT**

**December 2019**

**Assessment and treating candidiasis:**

Candida albicans is a fungus that is a normal component of the oral cavity. It may proliferate in the oral cavity, under certain conditions, and result in candidiasis. Medication, such as antibiotics or corticosteroids (and other immunosuppressive drugs), or medications that reduce salivary flow can cause candidiasis. Medical conditions that may cause candidiasis are diabetes, immunosuppression (HIV or autoimmune disorder/cancer treatments), xerostomia and use of removable dental prostheses.

Diagnosis and management of xerostomia must be recorded in the EPR to confirm clinical diagnosis and that measures have been implemented. There must be a follow up visit for re-assessment to document the effects of the proposed interventions. Candidiasis that does not respond to antifungal treatment must be referred to the appropriate specialty clinic.

Measures include prescribing systemic and/or topical antifungal treatments. Patients with removable dental prostheses who are diagnosed with candidiasis, also require treatment of the dental prostheses with antifungals.

**Candidiasis Diagnosis:**

Diagnosis of candidiasis includes: review of the patient medical history, risk assessment and the appearance of surface lesions.

Visual inspection:

**Diagnostic criteria and guidelines for treatment decision**

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|  | **Diagnostic Criteria** | **Intervention** |
| Pseudomembranous | * Soft, white plaques that rub off * Sensitivity to acidic drinks/food * Predisposing factor | * Clotrimazole troches or Diflucan or Nystatin rinse for 14 days * If removable prosthesis, soak overnight in Polident for 14 days |
| Erythematous | * Generalized erythema * Burning sensation * Predisposing factor | * Clotrimazole troches or Diflucan or Nystatin rinse for 14 days * If removable prosthesis, soak overnight in Polident for 14 days |
| Hyperplastic | * White areas that cannot be rubbed off * Asymptomatic * Predisposing factor | * Clotrimazole troches or Diflucan or Nystatin rinse for 14 days * If removable prosthesis, soak overnight in Polident for 14 days |
| Angular Chelitis | * Fissured, cracked red commissures * Predisposing factor | * Nystatin ointment for 10-14 days |

**Management / treatment of candidiasis**

* + The cause of the infection must be evaluated.
  + The rationale for treatment is the restoration of the normal balance of oral flora
  + Proper patient care and treatment is based on individual assessment. Mycelex troches are the first line of treatment, but may be contraindicated in patients taking certain medications or patients with severe xerostomia unable to dissolve the lozenge. Diflucan tablets may be used in these unless contraindicated. If both clotrimazole or Diflucan are contraindicated, then nystatin oral suspension should be used, although it is a less potent antifungal.
  + Patients should be counseled on etiology of disease, along with dispensing the oral candidiasis handout from American Academy of Oral Pathology
  + Sample antifungal prescriptions:

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| --- |
| Rx: **Clotrimazole 10mg**  Disp: 70 (seventy) tablets  Sig: Dissolve one tablet by mouth five times daily until gone |

For patients unable to use clotrimazole troches:

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| --- |
| Rx: **Diflucan 100mg**  Disp: 16 (sixteen) tablets  Sig: Take two tablets first day, then one tablet daily until gone  \*Check for drug interactions before prescribing (statins, warfarin, antihypertensives, benzodiazepines). Caution in patients with impaired liver function. |

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| Rx: **Nystatin oral suspension 100,000 U/ml**  Disp: 240 ml  Sig: Rinse with 5 ml QID daily for 2 minutes and expectorate, PC (after meals) and HS (before  bedtime), NPO ½ hour for 14 days  \*Limited effectiveness in adult patients and high sucrose content. Reinforce good oral hygiene. |

For angular chelitis:

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| |  | | --- | | ***R*X: Nystatin ointment 100,000 U/g**  Disp: 15 gm  Sig: Apply thin film to angles of mouth QID, PC & HS. NPO 1/2 hr. | |

Candidiasis - Rationale and Recommendations for Treatment

Adapted from American Academy of Oral Medicine recommendations guidelines, 2017.

American Academy of Oral Pathology.org/dentalprofessionalresources

**UIC College of Dentistry Library Resources:**

American Academy of Oral Medicine Clinicians Guide to Treatment of Common Oral Conditions, 8th Edition, 2017.

**HSV-1 AND HERPES ZOSTER INFECTIONS DIAGNOSIS AND MANAGEMENT**

**December 2019**

**Assessment and treating Herpes Simplex Virus-1 and Herpes Zoster infections**

HSV-1 is an infection of the oral mucosa that produces a primary acute phase (Herpetic Gingivostomatitis or Primary Herpes) and a secondary (recurrent) phase. The infection is transmitted by direct contact.

Herpes zoster (shingles) is a reactivation of the Varicella Zoster Virus (VZV).

Diagnosis and management of HSV/Herpes Zoster infections must be recorded in the EPR to confirm diagnosis and that these measures have been implemented. There must be periodic re-assessments to document the effects of the proposed interventions.

Measures include prescribing antiviral drugs and counseling patients on avoiding triggers (sunlight, trauma, stress)

**HSV/Herpes Zoster Infection Diagnosis:** Diagnosis of HSV includes: review of the patient medical history, risk assessment and changes in saliva.

* + **Detection of HSV/Zoster Infection:** Detection relies on an assessment of clinical findings, subjective findings and is supported by faculty experience and judgment.
  + **Detection methods:**

Visual inspection:

* All herpes virus appear abruptly and heal in a predictable 7-10 days. Zoster may last longer.

**Diagnostic criteria and guidelines for treatment**

* Primary herpes infection appears abruptly as clear or yellowish vesicles that rupture and form shallow painful ulcerations on both *keratinized and nonkeratinized* tissue. The patient demonstrates systematic symptoms such as fever and malaise.
* Recurrent herpes appears abruptly as single or clusters of vesicles that quickly rupture and form painful ulcers. Lesions occur on keratinized tissue only (hard palate or gingiva ). Recurrent herpes labialis appears on the lip in the same location.
* Zoster appears as clusters of vesicles that rupture and form ulcers in the distribution of a portion of the trigeminal nerve (stops at midline).

**Management and Treatment of HSV-1 and Zoster**

* Primary herpes infections recommendations include analgesics (no aspirin use in children), Maalox swish and spit for discomfort. Prescribe valacyclovir (>12 years of age) only if onset of symptoms has been less than 48 hour (72 hours for zoster).
* Application of sunscreen for prevention of recurrent herpes labialis is recommended. Consider prescribing a prophylactic daily dose of valacyclovir if greater than 6 outbreaks yearly. OTC Lysine 500-1000g daily may be sufficient to prevent outbreak in some patients.

Sample prescriptions:

*Primary and Recurrent HSV: (most effective if started within first 48 hours of symptom onset)*

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| |  | | --- | | **RX:Valacyclovir 500 mg or 1 g**  Primary HSV Gingivostomatitis :  Sig:1 gram BID x *7-10 days*  Recurrent HSV Gingivostomatitis/Labialis:  Sig:500mg BID x *3 days* | |

*Prophylaxis:*

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| --- | --- |
| |  | | --- | | ***RX:* Valacyclovir 500 mg**  Disp***:*** 30 caplets  Sig:Take 500 mg daily | |

*Zoster: (most effective if started within first 72 hours of symptom onset)*

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| |  | | --- | | ***RX:* Valacyclovir 1 gram**  Disp***:*** 21 caplets  Sig:Take 1 caplet TID for *7 days* | |

**MANAGEMENT OF CHRONIC MUCOSITIS**

**December 2019**

**Assessment and treating chronic mucositis**

Chronic mucositis includes recurrent aphthous stomatitis, erosive lichen planus, benign mucous membrane pemhigoid, and pemphigus.

**Recurrent aphthous stomatitis**

The etiology of aphthous ulcers is an altered local immune response that results in recurrent, shallow oral ulcers. Most cases are infrequent episodes of an isolated .5mm shallow ulcer (“canker sore”) and may not require treatment. Precipitating factors include stress, hormonal fluctuations or trauma. Patients with frequent recurrences or multiple, large ulcers require treatment and should be referred for evaluation by their physician for inflammatory bowel disease, neutropenia, vitamin deficiencies or other causes.

**Erosive lichen planus, benign mucous membrane pemhigoid, pemphigus**

The etiology of erosive lichen planus, benign mucous membrane pemphigoid and pemphigus is an autoimmune in nature. An inappropriate production of antibodies (autoantibodies) are directed against various components of epithelium, producing erosions and/or vesicles/bullae.

**Diagnosis:**

Diagnosis of recurrent aphthous stomatitis is made based on subjective and clinical findings.

* + **Detection of recurrent aphthous ulcers:** Aphthous ulcers have an abrupt onset and occur on *nonkeratinized* tissue. They resolve on their own within 5-10 days.

# Diagnostic criteria and guidelines for treatment decision

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|  | **Diagnostic Criteria** | **Intervention** |
| Minor aphthae | <.5cm,shallow,well circumscribed,painful ulceration covered by a grey-white membrane with erythematous halo. | If frequent recurrences or multiple ulcers, switch to an SLS\* free toothpaste. Consider Dexamethasone rinse prescription |
| Major aphthae | >.5cm, large painful ulcers. May last weeks to months | Use SLS free toothpaste  Rx: dexamethasone rinse |
| Herpetiform aphthae | Crops of small, shallow, painful ulcers | Use SLS free toothpaste  Rx: Dexamethasone rinse |

\*Sodium Lauryl Sulfate

Diagnosis of erosive lichen planus, benign mucous membrane pemphigoid, and pemphigus **requires incisional biopsy.** Direct immunofluorescent studies are strongly recommended for diagnosis of pemphigoid and pemphigus.

**Detection of lichen planus.** Erosive lichen planus presents as erosive areas of the mucosa, often times with a periphery of white striae (Wickam striae). Locations may include the lateral tongue, buccal mucosa and gingiva.

**Detection of benign mucous membrane pemphigoid (BMMP) and pemphigus.** BMMP and pemphigus present as large mucosal erosions on the buccal mucosa, lateral and ventral tongue, hard palate and gingiva. Skin lesions are often concurrent with oral lesions in pemphigus. Pemphigoid usually has no skin lesions, and intraoral vesicles may be seen.

**Management/treatment of recurrent aphthous ulcers**

* + The cause of the infection must be evaluated. Identification and removal of precipitating factors (stress, SLS containing toothpastes) can reduce recurrences.
  + The rationale for treatment is to reduce the pain and frequency of recurrences. Early intervention helps minimize the size and duration of ulcers.
  + Proper patient care and treatment is based on individual assessment. In minor cases, use of an SLS-free toothpaste (Biotene toothpaste) may be the only management necessary to decrease frequency of outbreaks.
  + If aphthous stomatitis concurrent with ocular or genital ulcers in a young adult, refer patient to physician for further assessment for potential Bechet’s syndrome
  + Oral candidiasis may result from topical steroid use. Patients should be reassessed for need of continued steroid therapy and monitored for development of candidiasis.
  + Patients should be counseled on etiology of disease, along with dispensing the recurrent aphthous stomatitis handout from American Academy of Oral Pathology

**Management/treatment of erosive lichen planus, BMMP, pemphigus**

* Pemphigus is a systemic disease and requires immediate referral to dermatologist for management and treatment. Oral lesions may still require topical steroid treatment.
* BMMP is treated with topical steroids. Patient must be referred to an ophthalmologist for evaluation for ocular involvement. Severe cases may require systemic steroid burst therapy.
* Lichen planus is treated with topical steroids. If skin lesions are concurrent, referral to dermatologist is required for management of skin lesions.
* Oral candidiasis may result from topical steroid use. Patients should be reassessed for need of continued steroid therapy and monitored for development of candidiasis.
* The rationale for treatment is to reduce the pain and frequency of recurrences. Early intervention helps minimize the size and duration of erosions.
* Patients should be counseled on etiology of disease, along with dispensing handout from American Academy of Oral Pathology

Sample prescriptions for chronic mucositis:

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| |  | | --- | | **RX: Dexamethasone 0.5 mg /5 ml oral solution**  Disp: 240 ml  Sig*:* Rinse with 5 ml for 1 min. and expectorate QID, PC  (after meals) and HS (before retiring). NPO 1\2 hr  Discontinue when asymptomatic. | |

|  |  |
| --- | --- |
| |  | | --- | | **RX: Flucinonide ointment .05%**  Disp: 15 g  Sig*:* Apply thin layer to oral lesions QID, PC  (after meals) and HS (before retiring). NPO 1\2 hr  Discontinue when asymptomatic. | |

|  |  |
| --- | --- |
| |  | | --- | | **RX: Clobetasol gel .05%**  Disp: 15 g  Sig*:* Apply thin layer to oral lesions BID. NPO 1\2 hr  Discontinue when asymptomatic. | |

|  |  |
| --- | --- |
| |  | | --- | | **RX: Medrol dose Pack**  Disp: One pack  Sig*:* Take as directed on package | |

Chronic Stomatitis - Rationale and Recommendations for Treatment for Aphthous Stomatitis, Erosive Lichen Planus, BMMP, Pemphigus

Adapted from American Academy of Oral Medicine recommendations guidelines, 2017.

American Academy of Oral Pathology.org/dentalprofessionalresources

# UIC College of Dentistry Library Resources:

# American Academy of Oral Medicine Clinicians Guide to Treatment of Common Oral Conditions, 8th Edition, 2017.

**EVALUATION OF POTENTIALLY MALIGNANT DISORDERS (PMDs)**

**PHILOSOPHY**

Early clinical identification and subsequent definitive diagnosis of PMDs or OSCC likely may reduce disease-related morbidity and mortality. The American Dental Association Council on Scientific Affairs expert panel in early detection, recommends the following in assessing and referring oral mucosal and submucosal lesions.

1. Review of the patient’s full medical and dental history.

* Includes risk factor assessment for Oral Squamous Cell Carcinoma (OSCC)

Risk factors: age, tobacco use, excessive alcohol use, Humanpapilloma Virus (HPV) immunosuppression, poor diet, a history of potentially malignant disorders (PMDs) or malignant disorders, and certain inherited diseases such as Fanconi anemia.

2. Conventional visual and tactile examination (CVTE). Intraoral and extraoral examination in dental patients.

* Assess any patient complaints such as persistent lump in throat, unexplained ear, or oropharyngeal pain, hoarseness, etc.
* Perform a head and neck lymph node evaluation
* Visualize and palpate for any oral mucosal or submucosal abnormalities

3. Mucosal and submucosal PMDs most commonly manifest as leukoplakia, and other manifestations can include speckled leukoplakia (erythroleukoplakia) or erythroplakia, with or without ulceration.

4.  Suspicious lesions require immediate referral to a specialist and remains the single most important recommendation for clinical practice. In exceptional cases, when patients decline a biopsy or live in rural areas with limited access to care, the panel suggested that cytologic testing may be used to initiate the diagnostic process until a biopsy can be performed (conditional recommendation, low-quality evidence).

References:

Lingen et al. [Evidence-based clinical practice guideline for the evaluation of potentially malignant disorders in the oral cavity: A report of the American Dental Association](https://jada.ada.org/article/S0002-8177(17)30701-8/fulltext) *The Journal of the American Dental Association*Vol. 148Issue 10p712–727.e10, October, 2017

**TMD PHILOSPHY**

TMDs are a group of jaw pain and dysfunction conditions involving these areas - the masticatory

muscles, the temporomandibular joints (TMJ) and associated structures. Often, people will say

they "have TMJ." TMJ is actually the name of the joint associated to the disorder.

TMD diagnosis and management is a controversial topic. It is a multifactorial etiology with several

contributing factors that vary according to the patient. Amongst the main etiologies, trauma,

parafunctional habits, psychosocial issues like anxiety and depression might play a role, in most

cases. Also, occlusion abnormalities are no longer believed to be the major cause affecting TMD,

but are still a consideration in certain subset of patients.

A diagnostic system has been developed based on physical factors ( Axis 1 ) and Psychological

factors(axis 2 ) has been developed in recent years and are called as Research Diagnostic criteria

(RDC). Based on RDC criteria, the TMD patients could be classified as:

1. Myofascial or Masticatory Muscle disorders

2. Temporomandibular Articular disorders

Treatments offered are as below:

**Nonsurgical Treatment:** After comprehensive history taking and examination, treatment plans

are tailored to individual needs and symptoms. The emphasis is on conservative treatment

approaches. Oral appliances such as splints / night guards can be made by the dentist, if grinding

at nighttime is suspected to play a role in the muscle or joint pain problem. These can relax painful

muscles and reduce joint soreness. We may also prescribe appropriate medications for pain,

inflammation, muscle relaxation. Referral for Physical therapy, Occupational therapy,

Psychotherapy, Neurologists, Rheumatologists, Chronic Pain Specialists might be done,

depending on the patients’ symptoms.

**Surgical Treatment:** Surgery is rarely needed for the overwhelming majority of TMD patients.

However, if nonsurgical management provides inadequate relief, and if the jaw joint has a clear

mechanical or pathological process requiring surgical intervention (e.g. tumor, disk problems,

rapid progressive degeneration of the jaw joint), surgery may be considered.

**OROFACIAL PAIN PHILOSPHY FOR OMFP CLINIC**

Orofacial Pain is classified as many different kinds of pain in relation to the head and neck area.

For dentists, it is important to realize that it could be classified as TMD or musculoskeletal type of pain, neuropathic pain, and neurovascular pain, as the patient can present with pain mimicking dental pain.

Temporomandibular disorders (TMD) are a heterogeneous group of musculoskeletal and neuromuscular conditions involving the temporomandibular joint complex, and surrounding musculature and osseous components. TMD is further classified as Muscular or Myofascial pain disorders, Disc Displacement disorders, Arthritic or Degenerative disorders. Therapies such as physical therapy, medications such as anti-inflammatories, muscle relaxers, splints or surgical interventions for refractory cases, could be advised, depending on the patient case.

Neuropathic pain is defined as pain caused by a lesion or disease of the somatosensory nervous system. It can be classified further as episodic and continuous pain. One of the most common episodic type of pain that is of relevance to the dentists is Trigeminal Neuralgia.

The diagnosis of trigeminal neuralgia is clinical and is based on three main criteria: pain restricted to the territory of one or more divisions of the trigeminal nerve; paroxysms of pain that are sudden, intense, and very short (<1 second to 2 minutes, but usually a few seconds) and are described as a “shock” or an “electric sensation”; and pain triggered by innocuous stimuli on the face or intraoral Trigeminal territory.

Continuous neuropathic pain examples include, but not limited to, persistent trigeminal neuropathic pain, burning mouth syndrome. Neurovascular pain examples could be patients having headaches such as Tension type, Migraines, and other neurovascular type like Temporal Arteritis.

The patient should be referred for further diagnosis and management to an Orofacial Pain Specialist or a Neurologist. Medications such as anticonvulsants, antidepressants, anti- anxiety meds can be prescribed to the patient, depending on the patient condition.

References:

1. IASP
2. Orofacial Pain: Guidelines for Assessment, Diagnosis, and Management (American Academy of Orofacial Pain) "Reny de Leeuw", "Gary D. Klasser".

*Note: All medications and dosages listed in these philosophies are subject to change. A review of the literature is always necessary to ensure the most current treatment protocol is being utilized.*

**ORAL MEDICINE AND DIAGNOSTIC SCIENCES**

**Division of Radiology**

February 2021

*Radi­ographic examinations may provide essential information for the diag­nosis, treatment and prevention of oral disease and maxillofacial/craniofacial differences. When properly prescribed, acquired, interpreted and integrated with the medical history, clinical examination and patient dialogue, diagnostic images can be an indispensable and integral component of the practice of dentistry.*

A radiographic examination is prescribed in order to answer a specific diagnostic question needed to establish, maintain or promote the patient’s health.

Radiology Rotation Philosophy

Cooperate with Radiology Technicians and Clinical

Colleagues in a professional and collaborative manner

Articulate and apply HIPAA/OSHA/FDA/UIC standards

concerning radiation safety, infection control and patient privacy

Acquire intraoral and panoramic images of diagnostic quality

while treating all patients in a safe and respectful environment

Demonstrate the ability to evaluate image quality and articulate

appropriate adjustments when retaking an image is necessary

## PRESCRIBING DENTAL IMAGES - LIMITING RADIATION EXPOSURE

Dental images account for approximately 2.5 percent of the radiation dose received from healthcare. Even though radiation exposure from dental images is low, once a decision to obtain an image is made it is the dentist's responsibility to follow the ALARA Principle (As Low as Reasonably Achievable) to minimize the patient's exposure.

Examples of good radiologic practice include:

Use of protective aprons and thyroid collars, when appropriate; and

limiting the number of images obtained to the minimum necessary to obtain essential diagnostic information.

Clinical faculty and students rendering patient care must be familiar with and adhere to the principles set forth in the 2012 ADA/FDA recommendations for the prescription of dental radiographic examination, entitled: *Dental Radiographic Examinations: Recommendations for Patient Selection and Limiting Radiation*

2012 ADA/FDA Guidelines information is posted in all undergraduate clinics, Central Radiology suites and available college-wide @ <https://dentistry.uic.edu/>

These guidelines have been electronically broadcast to all clinical faculty and represent the collective philosophy of the college regarding the prescription of dental radiographs.

## OPERATOR QUALIFICATIONS AND AUTHORIZATION

Only those categories of operators defined in this section shall be considered authorized to operate dental x-ray equipment.

Students - The operation of x-ray equipment by DMD/AS students under direct supervision is authorized provided:

The student-operator shall have successfully completed instruction /demonstration/understanding/feedback that includes radiation physics, radiation safety, radiation protection, radiographic prescription (including ALARA) and infection control in radiology. A student must demonstrate competency in the clinical application of radiation safety, infection control in radiology and appropriate radiographic technique. This requirement is currently accomplished in Small Group Learning, the clinical demonstration/workshops via Central Radiology Rotations, reinforcement in patient care clinics and individual consultation with the Director of Radiology or his/her designate by appointment.

Although the technical component of securing a diagnostic image may be delegated to a radiology technician, dental assistant or RDH, it is the primary responsibility of the authorizing faculty member to insure that necessary supervision is available and enforced.

Staff - The operation of x-ray equipment by Dental School staff is authorized provided:

The x-ray operator shall be a dental assistant, dental radiographic technician or registered dental hygienist.

A member of the Dental School clinical faculty shall be available during image capture and for consultation or evaluation of the diagnostic acceptability of the image(s).

Faculty and Post-doctoral Residents - All members of the Dental School faculty who are authorized to provide patient care and all post-doctoral students authorized to provide patient care are authorized to operate x-ray equipment. Specific department heads/program directors may limit this authorization as he/she deems appropriate/necessary. Authorization to operate one type of imaging system is not a blanket authorization to operate other types of imaging equipment.

CRITERIA FOR PATIENT SELECTION

No image will be taken without electronic prescription by an authorized UIC/COD clinical faculty member after conducting a clinical examination and a reviewing the medical history.

To maximize the benefits of the radiation exposure, the need for all radiographs should be determined by using high-yield criteria as the basis of professional judgement, as established through history, patient dialogue and clinical examination.

The need for radiographs for diagnosis/treatment planning, during treatment and post-operatively, and the frequency of recall radiographs should be based on 2012 ADA / FDA recommendations for the prescription of dental radiographic examination: "Dental Radiographic Examinations: Recommendations for Patient Selection and Limiting Radiation Exposure"

Where pertinent and relevant prior images are available, they should be obtained and evaluated for diagnostic yield before any new radiographs are prescribed.

No image will be made solely for the purpose of initial screening of patients for acceptability for treatment in the dental college unless there is a high likelihood of such acceptance. A clinical examination with be accomplished prior to ordering any image.

Patients/students/staff will not be exposed to ionizing radiation for teaching/ training/demonstration purposes. There must be a diagnostic rationale evident before exposing any individual to ionizing radiation.

No image will be acquired solely for administrative purposes. Patients will not be exposed to ionizing radiation following treatment procedures solely to document completion of a procedure.

Patients will not be subjected to radiographic retakes solely for students to demonstrate technical proficiency. Retakes will be based on the need to acquire a diagnostic image with the requisite diagnostic yield needed to advance/maintain/establish the health of the patient.

Radiographs which do not meet diagnostic criteria must be retaken. These retakes are made under the supervision of and/or with the assistance of an instructor/technician.

Diagnostic images necessary to provide urgent care for a pregnant patient will be prescribed after informed consent and acquired with strict adherence to ALARA. While this protocol is routinely followed on all patients, pregnancy necessitates the clinician demonstrate a concern tailored to the patient’s condition.

The radiographic procedure(s) chosen will be predicated upon the basis of maximizing relevant diagnostic yield while minimizing patient exposure to ionizing radiation. Once the need for a radiographic examination is established, the principle of ALARA (as low as reasonably achievable) is integrated into all radiographic exposure decisions.

AUTHORIZATION PRIOR TO EXPOSING A PATIENT TO IONIZING RADIATION

All radiographic examinations, including retakes and intra-treatment images, shall be authorized by a UIC/COD faculty member by prescription in the patient’s dental electronic health record (EHR). This record will specify the request date of the examination, authorization code of the faculty member and type of exposure(s) requested. The number of total completed exposures, including necessary retakes, shall be recorded. This information is intended to document the patient’s history of exposure to diagnostic ionizing radiation within the College of Dentistry and the types of radiographs used for diagnostic evaluation. This is done in recognition that the effects of ionizing radiation are cumulative. Specific codes are used for non-diagnostic images.

Radiographic examinations made outside the Central Radiology Clinic (example, the group practice clinics) are to be supervised by a clinical faculty member of the involved practice and must be authorized/recorded as above. The supervising faculty member is responsible for overseeing and assuring that proper radiation protection, college dictates on infection control and the radiographic prescription concept of ALARA are routinely adhered to in his/her clinic.

## PRESCRIBING DENTAL IMAGES FOR NEW PATIENTS

New patients to the College of Dentistry will be asked if recent radiographs are available during their screening visit. If recent images, films or acceptable duplicates are not available, then an appropriate radiographic examination will be ordered by a faculty member. If, at the screening examination, the evaluating clinician’s professional judgment is that the person presenting to the college is likely to become a member COD patient population, the clinician may prescribe a panoramic image which will serve as a diagnostic adjunct at the COE appointment and assist in facilitating patient care in a timely manner. Specific image prescription guidelines are available at:

Dental Radiographic Examinations: Recommendations for Patient Selection and Limiting Radiation Exposure"

## FREQUENCY OF EXPOSING PATIENTS TO IONIZING RADIATION

Professional judgment and the needs of the patient for optimal diagnosis and treatment will determine the frequency of radiographic examination and not solely the period of time elapsed since the last examination (see exception below). In each case, consistent with the guidelines stated and cited in this document and subject to the legal doctrine of informed consent, the ultimate decision to prescribe a radiographic examination rests with the supervising clinician.

For category-based rationale/guidelines concerning the frequency of exposure as well as the type of imaging examination to prescribe, consult: 2012 ADA / FDA recommendations for the prescription of dental radiographic examination: "Dental Radiographic Examinations: Recommendations for Patient Selection and Limiting Radiation Exposure"

This document endorses the following time-related frequency of exposure:

*In the practice of dentistry, patients often seek care on a routine basis in part because oral disease may develop in the absence of clinical symptoms. Since attempts to identify specific criteria that will accurately predict a high probability of finding*

*interproximal carious lesions have not been successful for individuals, it was necessary to recommend time-based schedules for making radiographs intended primarily for the detection of dental caries. Each schedule provides a range of recommended intervals that are derived from the results of research into the rates at which interproximal caries progresses through tooth enamel. The recommendations also are modified by criteria that place an individual at an increased risk for dental caries. Professional judgment should be used to determine the optimal time between radiographic examinations within a suggested interval.*

PREGNANT PATIENTS OR PATIENTS WHO STATE THEY MAY BE PREGNANT

For urgent care situations, any image deemed necessary for the diagnose and treatment of acute dental problems should be prescribed utilizing strict adherence to the concept of ALARA. Additionally, a faculty member may decide to authorize a specific image if the patient presents with a condition that is likely to worsen during pregnancy.

Images should not be taken for elective dental procedures if a patient is pregnant. This includes screening appointments for admission to the college.

In all cases appropriate protective measures (protective apron with thyroid collar if appropriate, appropriate sensor, proper infection control) must be followed.

Protective aprons should be removed immediately after the x-ray exposure since the weight and discomfort may be difficult for some pregnant patients to tolerate.

## GUIDELINES FOR RETAKING DENTAL IMAGES

Non-diagnostic images should be retaken by faculty or trained staff unless in their judgment the involved student can suc­cessfully retake the image. Retaking an image must be done under direct supervision. The technical reason for the retake must be identified by the student initially acquiring the image. If the student is unable to articulate the reason behind the non-diagnostic image it must be communicated to them by the supervising facility/trained staff. To restate this concept, the operator must know before he/she initiates the retake why the original image was non-diagnostic. In this way a repeated error is not committed which would unnecessarily subject the patient to additional ionizing radiation without gaining the diagnostic information required.

**POLICY ON RETAKING IMAGES**

Non-diagnostic images must be retaken under the direct supervision of a faculty member unless in their judgment the involved student can successfully retake the image.

The operator must know before they initiate the retake why the original image was non-diagnostic so a repeated error is not committed.

adapted from: *UIC/COD Policy for the Diagnostic Use of Ionizing Radiation, Patient Selection and Limiting Radiation Exposure 2021*

AUTHORIZATION AND INTERPRETATION OF CBCT SCANS

It must be recognized that CBCT subjects the patient to a relatively high radiation dose. As with all imaging, the Risk-Benefit Analysis must justify prescribing a CBCT study. ALARA must be followed. The field-of-view (FOV) must be limited to the anatomic region of interest. Since radiation dose is influenced by the voxel size, imaging parameters including resolution must be selected to address the necessary diagnostic yield of the imaging study.

Three-dimensional diagnostic imaging (conebeam computed tomography/volumetric tomography (CBCT/CBVT)) can only be ordered by a department head or their designate, the Associate Dean of Clinical Affairs and the Director of Radiology.

The faculty member who prescribes a CBCT scan is responsible for interpreting the data set and insuring that pertinent findings are recorded in the EHR. Anatomic areas outside the maxillofacial region must be reviewed for any anomalies/pathologic conditions that necessitate consultation/referral. Such referrals will be made in accordance with standard college policies.

Each department head shall establish what qualifications they deem necessary for a faculty member to be qualified to prescribe/interpret a CBCT scan. In order to maintain procedural uniformity within the college, a continuing education session entitled “CBCT: Navigation and Interpretation” is offered by the Division of Radiology throughout the year. All faculty authorized to order CBCT scans shall attend this session at the discretion of their department head. Additionally, the Director of Radiology shall, upon email request from any faculty member or specialty resident, provide individualized workshops on anatomy, pathology and the need of referral in regards to CBCT.

RESOURCES THAT REFLECT COLLEGE PHILOSOPHY

ADA 2012: Radiology – Patient Selection Criteria

<http://www.ada.org/sections/professionalResources/pdfs/Dental_Radiographic_Examinations_2012.pdf>

Recommendations for Prescribing Dental Radiographs

2012 ADA Statement

<http://www.ada.org/sections/professionalResources/pdfs/Dental_Radiographic_Examinations_2012.pdf>

New Patient Being Evaluated for Oral Diseases

2012 ADA Statement

<http://www.ada.org/sections/professionalResources/pdfs/Dental_Radiographic_Examinations_2012.pdf>

Limiting Radiation Exposure

2012 ADA Statement

<http://www.ada.org/sections/professionalResources/pdfs/Dental_Radiographic_Examinations_2012.pdf>

Cone-beam computed tomography (CBCT)

2012 ADA statement on indications for CBCT examinations

<http://www.ada.org/sections/professionalResources/pdfs/Dental_Radiographic_Examinations_2012.pdf>

The American Academy of Oral and Maxillofacial Radiology

[www.AAOMR.org](http://www.AAOMR.org)

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