



Best Practice Guidelines for the Management of
**Oral Complications from
Cancer Therapy**

**Dental Practitioner
Version**



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Best Practice Guidelines for the Management of Oral Complications from Cancer Therapy

Oral complications often result from systemic chemotherapy or radiotherapy to the head and neck. Complications may occur within days of high-dose chemotherapy, or weeks later with lower dose chemotherapy. Risk levels are defined in Figures 1 to 3.

Oral complications may be prevented by adherence to a mouth care protocol. Strict oral hygiene procedures and routine use of a mouth rinse solution (Tables 1 & 2) forms the basis of good oral care, to prevent development and escalation of oral infection. For higher risk patients, a pre-treatment dental exam (to rule out pre-existing oral disease) is included in routine prophylaxis.

All patients should be screened at each visit for oral mucositis and other oral complications (using the adapted Common Toxicity Criteria). A brief physical exam (including use of a flashlight to examine the oral cavity) should be conducted with attention to any symptoms reported by the patient (e.g. sore mouth, dry mouth, strange sensations, difficulty eating). If oral mucositis and/or another oral complication becomes a focus of care, assessment should be documented on the Mouth Care Record (Table 3). High risk patients should be assessed using the Mouth Care Record from the start of treatment.

Table 1 Mouth Rinse Solutions for Oral Complications

- | |
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| Tap water or bottled water Carbonated soda water (commercial) Sodium bicarbonate <ul style="list-style-type: none"> • Add 1/2 tsp to 8 oz. of water, prepare fresh solution at least once daily Normal saline <ul style="list-style-type: none"> • Add 1/2 tsp of table salt to 8 oz. of water |
| <ul style="list-style-type: none"> • Rinse, swish and spit approx. 1 tbsp (15mL) several times after each meal, at bedtime and PRN |

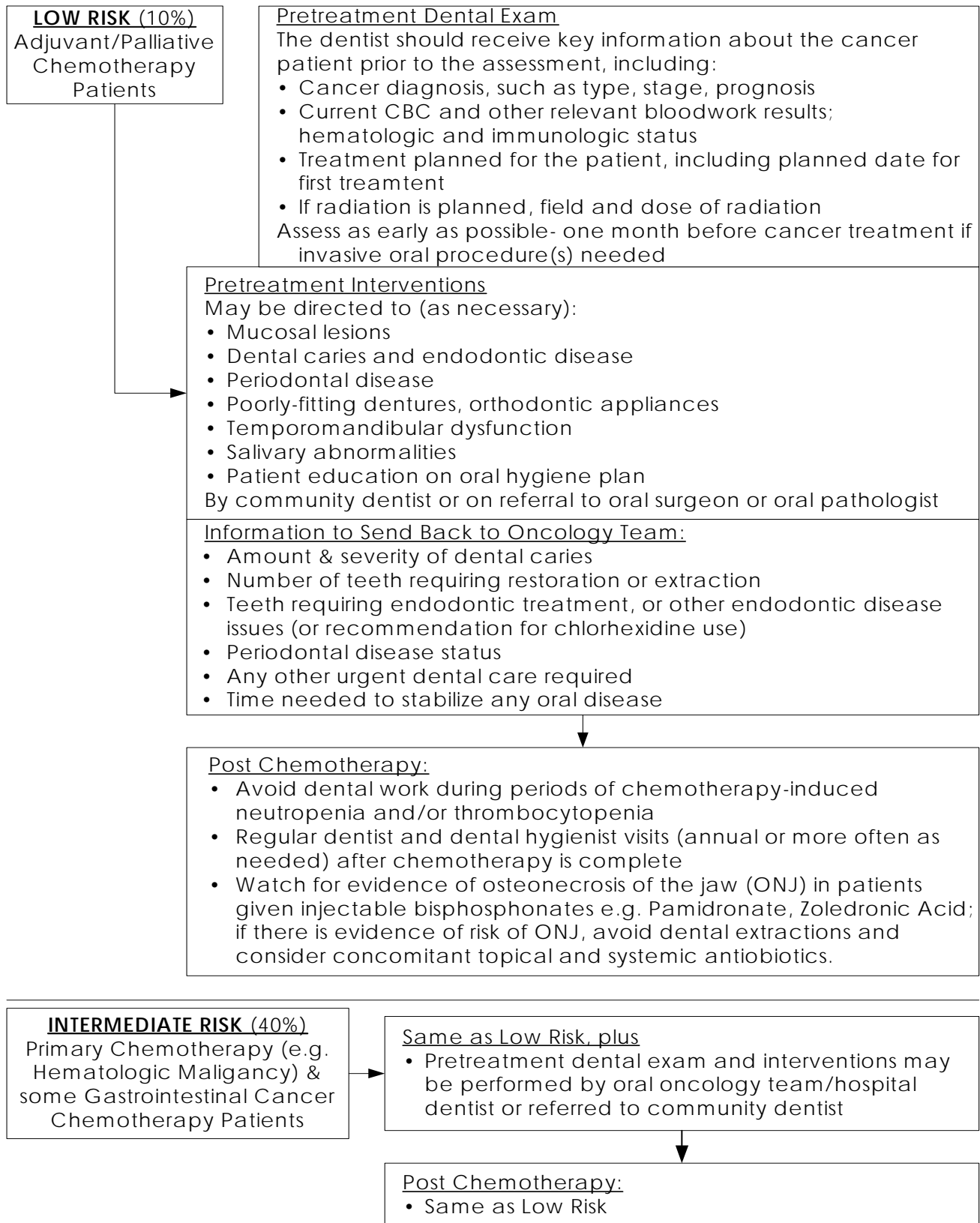
Management of oral complications may vary, depending upon level of treatment-associated risk, and the nature and severity of the problem. Involvement of the patient's dentist early in the care of higher-risk patients (See Figure 1) may improve prevention and post-treatment management of any oral problems. If the patient has difficulty eating as a result of oral pain or mucositis, a referral to a dietitian could be helpful. Severe oral complications may require hospital admission, especially if associated with an acute infection in a neutropenic patient, or if the patient is unable to eat. Management of specific oral complications is outlined in Figure 6.

Mucositis management has changed in recent years, with solid evidence-based recommendations in favour or against certain treatments. A rational step-wise approach is recommended in this guideline, limiting treatment to appropriate agents for specific patient symptoms. Use of various combination mouthwash formulations has been mostly empiric in oncology practices. In this guideline, it is recommended to limit the number of formulations to pain relief products only (see Table 6) and to eliminate any formulations that include antibiotic agents (e.g. nystatin). This recommendation is based on rational medication use principles to use agents only for symptoms present, to avoid use of ineffective prophylactic agents (e.g. antibiotics), and to employ products according to indication.

Table 2 Mouth Rinse Solutions for Pediatric Cancer Patients

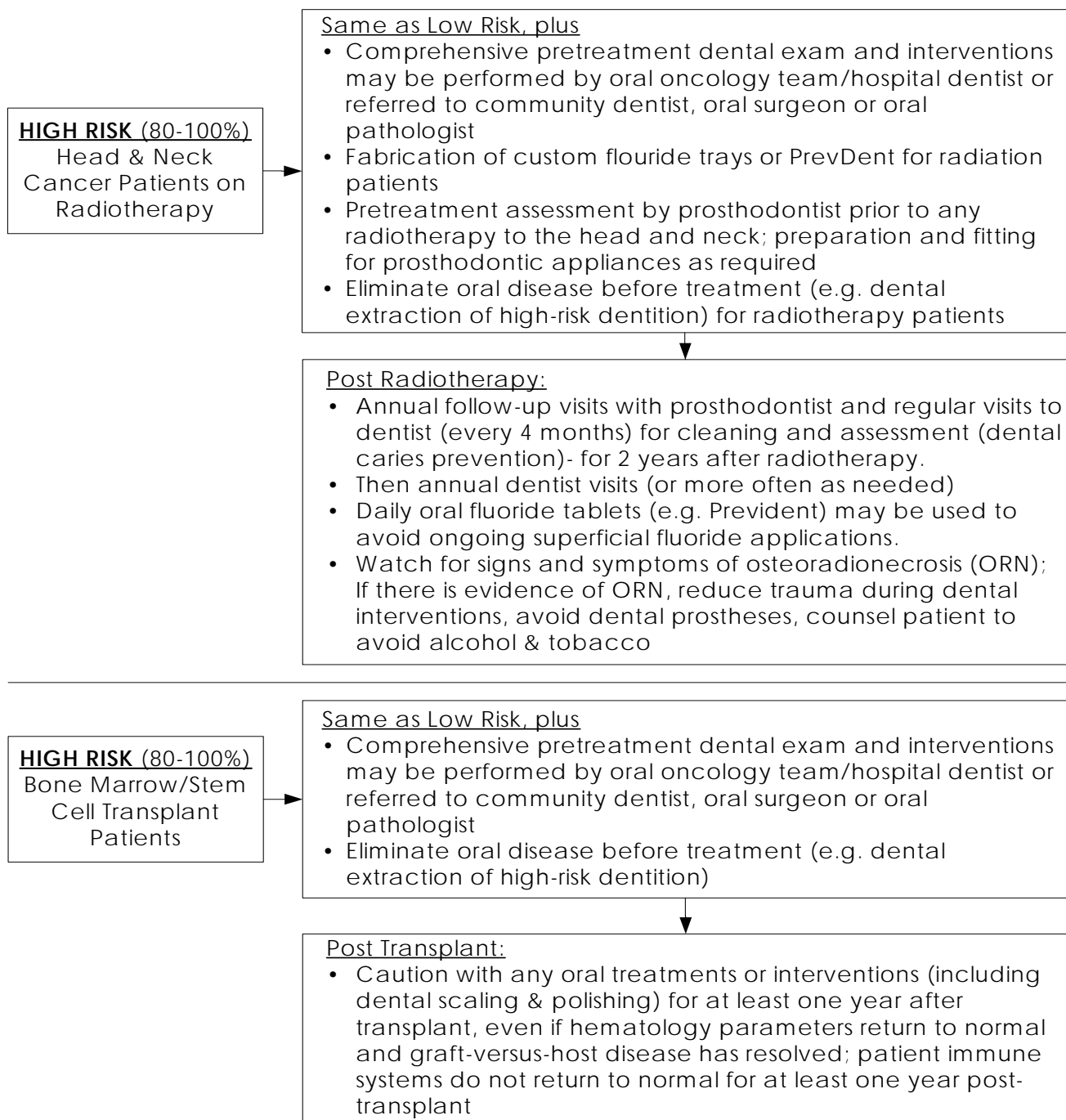
- | |
|---|
| <ul style="list-style-type: none"> • Chlorhexidine 0.12% (e.g. Oro-X with Chlorhexidine 0.12% MIC) • 5mL if <6 years, 10mL if > 6 years • Swish and spit BID-QID, or swab mouth or rinse soother up to QID |
|---|

Figure 1 Dental Assessment & Interventions for Cancer Patients: Low and Intermediate Risk for Oral Complications



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Figure 2 Dental Assessment & Interventions for Cancer Patients: High Risk for Oral Complications



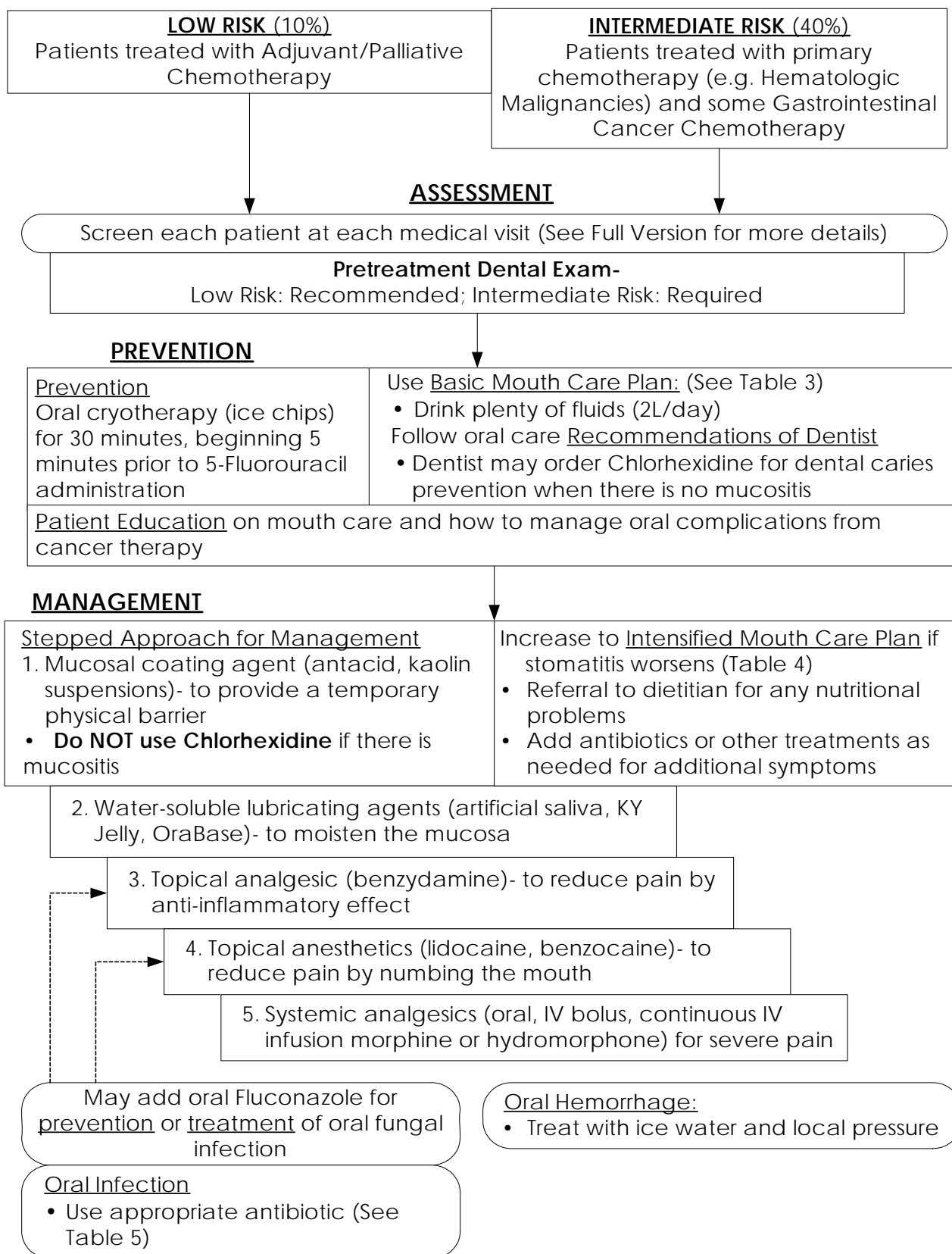
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Table 3 Basic Mouth Care Plan

| | |
|----------|---|
| Flossing | <ul style="list-style-type: none"> • Flossing with dental floss allows a patient to clean surfaces between the teeth • Flossing is usually done before brushing, and before going to bed. • The patient should continue their flossing practices, using the same type of dental floss as they have done in the past. • If flossing causes bleeding of the gums which does not stop after 2 minutes, it should be discontinued. Flossing may be restarted when the platelet count is $\geq 20 \times 10^9/L$, or as instructed by their cancer care team. • Patients who have not flossed routinely before cancer treatment should not begin flossing at this time • Patients with cancers in the mouth may not be able to floss |
| Brushing | <ul style="list-style-type: none"> • Use a small, soft-headed, rounded-end, bristle toothbrush (electric toothbrushes are not preferred), and a fluoridated toothpaste or gel (preferably with a neutral taste) • Brush teeth 4 times daily, within 30 minutes after eating and before bed. Brush after flossing • Rinse toothbrush in hot water to soften it before using • Brush tongue gently from back to front • Rinse brush after using in hot water. Air dry. • Change toothbrush when bristles are not standing up straight (about once per month) <p><u>Patients with Head & Neck Cancers</u></p> <ul style="list-style-type: none"> • Brushing may not be appropriate because of tumor involvement. Patient may attempt to clean teeth with a moist gauze wrapped around the finger or a foam swab soaked in rinsing solution, if able. Otherwise patient should rinse mouth several times with rinsing solution. <p><u>Dentures</u></p> <ul style="list-style-type: none"> • Remove dentures, plates and prostheses before beginning mouth care. • Rinse mouth thoroughly with rinse solution. • Brush and rinse dentures after meals and at bedtime. Rinse with rinsing solution before placing in mouth. Remove from mouth for long periods (at least 8 hours/24). Soak in rinsing solution. |
| Rinsing | <ul style="list-style-type: none"> • Rinsing the oral cavity helps to maintain the moisture in the mouth, removes the remaining debris and toothpaste, and reduces the accumulation of plaque and infection • Rinse vigorously several times after brushing and flossing, using one of the rinsing solutions |
| Lip Care | <ul style="list-style-type: none"> • Coat lips with an oil-based or water soluble lubricant to keep them moist. Water soluble lubricants may be used inside and outside the mouth, and can be used with oxygen, since there is no risk of aspiration. • Apply the lubricant after each cleaning, at bedtime, and as needed. Water-based lubricant needs to be applied more frequently. |
| Eating | <p>Avoid abrasive, rough, spicy, acidic and hot foods. All irritants should be avoided, especially alcohol and tobacco. Eat soft foods. Avoid foods containing a lot of sugar, and really cold foods. Encourage high-density and high-fibre foods to clean teeth and massage gums. Encourage a well-balanced diet, high in protein, vitamins B & C. Encourage a fluid intake of at least 2 litres per day to keep mucous membranes moist.</p> |

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Figure 3 Prevention & Management of Oral Complications in Low & Intermediate Risk Patients



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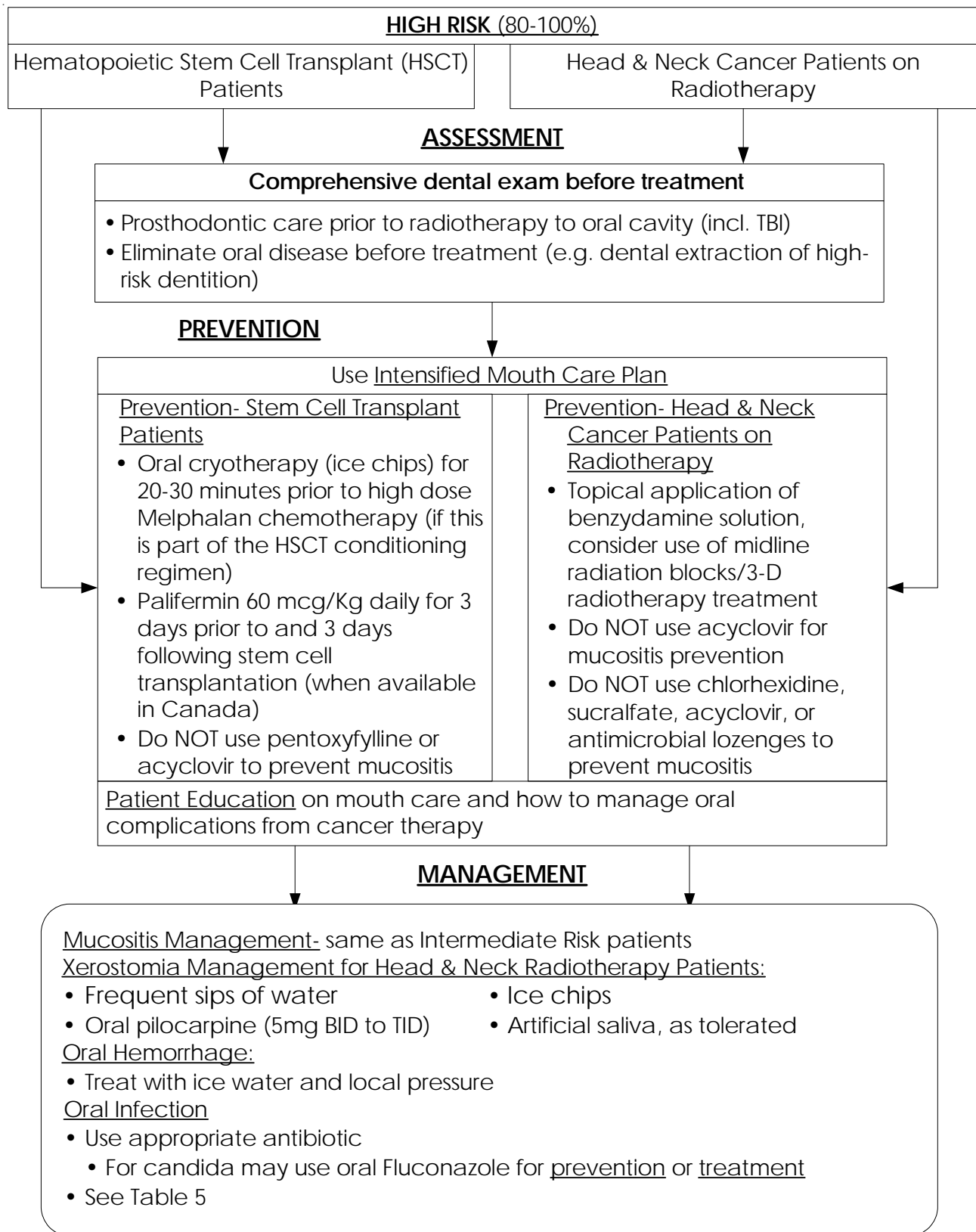
Table 4 Intensified Mouth Care Plan

In Addition to Basic Mouth Care Plan

| | |
|----------|---|
| Flossing | <ul style="list-style-type: none"> • Continue until discomfort becomes too great • Discontinue flossing if gums bleed for longer than 2 minutes. Advise patient to try to begin again when platelet count rises $>20 \times 10^9$ cells/mL. |
| Brushing | <ul style="list-style-type: none"> • Use ultra soft toothbrush (Butler 435 stocked on some inpatient units) • Encourage patient to continue brushing through treatment even when it causes discomfort. If unable to tolerate brushing after benefits are reinforced and weighed against the detriments, try to clean teeth with a moist gauze wrapped around finger or a foam swab soaked in rinsing solution. • Consider the use of a topical analgesic q 4-6 hours to promote more thorough tooth brushing when continuous pain is present. Oral analgesics (opioids) should be given 60 minutes before brushing. • Consider a topical anesthetic before brushing to minimize pain. • If bleeding does occur, encourage more gentle brushing. If bleeding does not stop after 2 minutes, consider cleaning with gauze, toothette or vigorous rinsing (with rinsing solution). Restart brushing when platelet count $> 20 \times 10^9$ • If the gingival tissue bleeds, clean teeth with a moist gauze wrapped around the finger or a foam swab • If there has been an oral infection, use a new toothbrush after infection is resolved. • <u>Dentures</u> Keep out of mouth as much as possible |
| Rinsing | <ul style="list-style-type: none"> • Perform in place of brushing if patient absolutely unable to brush. • As well as after meals, encourage rinsing every 1-2 hours while awake, and every 4 hours through the night if awake (to minimize complications of decreased saliva). • If unable to clean using toothette or gauze or swishing (or tilting head), syringe rinsing solution into different areas of mouth if platelet level is not too low. |

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Figure 4 Prevention & Management of Oral Complications in High Risk Patients



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Table 5 Presentation and Treatment of Oral Infections in Cancer Patients

| Infection | Appearance and Characteristics | Treatment |
|---|---|--|
| <p>Fungal infections including Candidiasis</p> | <p>Oral candidiasis may have one of several different clinical appearances</p> <ul style="list-style-type: none"> • Pseudomembranous candidiasis, also known as thrush, is the most common form of oral candidiasis. It typically appears as white patches on the surface of the oral mucosa, and/or tongue, that develop into confluent plaques that resemble milk curds and can be wiped off to reveal a raw erythematous and sometimes bleeding base which may be tender. • Chronic hyperplastic candidiasis (or candidal leukoplakia) is a less common, asymptomatic form of candidiasis, that appears as a dense, white plaque that is hard and rough to the touch (plaquelike lesion). Homogeneous or speckled areas, which do not rub off (nodular lesions), can be seen, usually on the inside surface of one or both cheeks. • Angular cheilitis (perleche) is a type of candidiasis that appears as red, eroded, fissured lesions which occur bilaterally in the commissures of the lips and are frequently irritated and painful. | <p>Oral systemic antifungals are usually the drug of choice for prevention and/or treatment of candidiasis in cancer patients with normal immune function.</p> <ul style="list-style-type: none"> • Fluconazole 100 mg PO daily is equal or more effective against oropharyngeal candidiasis in cancer patients than nystatin or clotrimazole. Prophylactic fluconazole 100 mg PO daily (400 mg PO daily for HSCT patients) may be considered for prevention of oral candidiasis in cancer patients. Maintenance therapy to prevent relapse after initial treatment- 50 mg (up to 400 mg) daily • Nystatin suspension 100,000U/mL- Use in patients who cannot tolerate Fluconazole (or other azole antifungals); Swish around and hold in the mouth for at least one minute, then swallow; use 5 mL qid for 7-14 days (works by direct contact) <ul style="list-style-type: none"> • For children, use 2mL for infants, or 4 to 6 mL for children- Swish and swallow or swab mouth QID • Nystatin cream to treat dentures • Nystatin popcicles (for cooling relief) • Clotrimazole oral suspension 1mg/mL- Swish around the mouth for one minute and then swallow; use 10 mL qid <ul style="list-style-type: none"> • For children, use 3mL if < 1 year, 5mL if 1-3 years, , or 10mL if > 3 years- Swish and swallow or swab mouth • Clotrimazole troche 10 mg 5x daily |
| <p>Bacterial infection</p> | <p>Periodontitis or gingivitis (oral infections) usually appear as reddened gums which bleed easily on probing.</p> <p>When the natural flora is affected by cancer therapy, some of the bacteria may proliferate and invade the gastrointestinal, cardiovascular, renal, or respiratory systems, resulting in systemic infections (such as bacterial endocarditis or glomerulonephritis). Local infections in the oral cavity may provide foci for systemic infection.</p> | <p>Eliminate oral sources of bacteremia before chemotherapy (consult dentist)</p> <ul style="list-style-type: none"> • Assessment and interventions for advanced periodontal disease, periapical pathosis <p>Broad-spectrum systemic antibiotic therapy (e.g. Cloxacillin or cephalixin)</p> |

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| Table 5 Presentation and Treatment of Oral Infections in Cancer Patients | | |
|---|--|---|
| Infection | Appearance and Characteristics | Treatment |
| Herpes simplex | <p>Symptomatic primary infection, with multiple, small, clustered vesicles in numerous locations, can occur anywhere in the oral cavity, on the perioral skin, on the lips, or on the pharynx, and can be severe. Extensive ulceration can make eating painful. Headache, fever, painful lymphadenopathy, and malaise are common.</p> <p>Recurrent herpes lesions (or cold sores) occur on keratinized mucosa (usually the lips, attached gingiva, and/or the hard palate). Vesicles often break quickly, so the lesions may appear as small clustered ulcers.</p> | <p>Topical acyclovir- Apply to affected area q3-4h, for a total of 6 times/d, for 7 d; apply a sufficient quantity to adequately cover all lesions</p> <p>Systemic acyclovir for larger lesions</p> <ul style="list-style-type: none"> • Primary HSV: 200 mg q4h PO 5 times/day for 10 days or 500 mg tid PO for 7-10 days (In immunocompromised patients, consider 400 mg q4h PO 5 times/day for 10 days) • Recurrent HSV: 200 mg q4h PO 5 times/d for 5 d <p>Valacyclovir 500 mg BIDPO for 7 d (Primary HSV)</p> |
| Varicella-zoster | <p>Recurrent varicella (also known as herpes zoster or shingles) results in a vesicular rash that usually affects a single dermatome. Inside the oral cavity, this may be observed as vesicles or ulcerations that stop sharply at the midline. A prodrome of pain, burning, or itching that mimics a toothache may occur. After the resolution of the rash, postherpetic neuralgia may linger for a month or longer, especially in patients who are immunosuppressed.</p> | <p>Acyclovir 400 mg 5 times/day PO for 7-10 days; for severe infection, 5 mg (base) per kg body weight q8h IV for 5-7 days (administer over at least 1 h); patients with acute or chronic renal impairment may require dose reduction (200 mg q12h PO when CrCl 0-10 mL/min)</p> <p>Valacyclovir 1000 mg TID PO for 7 days</p> |
| Cytomegalovirus | <p>CMV infection may cause esophagitis, which is occasionally accompanied by oral ulcerations or erythema. Oral ulcerations are clinically nonspecific; a biopsy is required for definitive diagnosis.</p> | <p>Ganciclovir (individualized dosing)</p> |
| Non-herpes virus infections | <p>Verruca vulgaris (common warts) in the oral cavity are usually sharp-tipped, verrucous, white and elevated with discrete borders. The lesions most commonly occur on the lips, hard palate, or gingiva. Verruca plana is similar but less elevated. Warts are commonly observed on the digits of patients with oral infection.</p> <p>Condyloma acuminata, or genital warts may also affect the oral mucosa. These lesions are usually cerebriform, pink, and sessile; they occur more commonly on nonkeratinized mucosa than on keratinized mucosa.</p> | <p>Laser surgery or cryotherapy to remove oral HPV lesions</p> <p>Intralesional injections of Imiquimod (Aldara™) may be used for recurrent lesions</p> <p>May be surgically excised</p> |

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