COLLEGE OF DENTAL HYGIENISTS OF ONTARIO ADVISORY

ADVISORY TITLE

Use of the dental hygiene interventions of scaling of teeth and root planing including curetting surrounding tissue, orthodontic and restorative practices, and other invasive interventions for persons\(^1\) with lymphoma.

ADVISORY STATUS

Cite as

*College of Dental Hygienists of Ontario, CDHO Advisory Lymphoma, 2012-03-01*

INTERVENTIONS AND PRACTICES CONSIDERED

Scaling of teeth and root planing including curetting surrounding tissue, orthodontic and restorative practices, and other invasive interventions (“the Procedures”).

SCOPE

DISEASE/CONDITION(S)/PROCEDURE(S)

Lymphoma

INTENDED USERS

- Advanced practice nurses
- Dental assistants
- Dental hygienists
- Dentists
- Denturists
- Dieticians
- Health professional students
- Nurses
- Patients/clients
- Pharmacists
- Physicians
- Public health departments
- Regulatory bodies

ADVISORY OBJECTIVE(S)

To guide dental hygienists at the point of care relative to the use of the Procedures for persons who have lymphoma, chiefly as follows.

1. Understanding the medical condition.
2. Sourcing medications information.
3. Taking the medical and medications history.
4. Identifying and contacting the most appropriate healthcare provider(s) for medical advice.

\(^1\) Persons includes young persons and children
5. Understanding and taking appropriate precautions prior to and during the Procedures proposed.
6. Deciding when and when not to proceed with the Procedures proposed.
7. Dealing with adverse events arising during the Procedures.
8. Keeping records.

**TARGET POPULATION**

Child (2 to 12 years)
Adolescent (13 to 18 years)
Adult (19 to 44 years)
Middle Age (45 to 64 years)
Aged (65 to 79 years)
Aged 80 and over
Male
Female

Parents, guardians, and family caregivers of children, young persons and adults with lymphoma.

**MAJOR OUTCOMES CONSIDERED**

For persons who have lymphoma: to maximize health benefits and minimize adverse effects by promoting the performance of the Procedures at the right time with the appropriate precautions, and by discouraging the performance of the Procedures at the wrong time or in the absence of appropriate precautions.

**RECOMMENDATIONS**

**UNDERSTANDING THE MEDICAL CONDITION**

**Terminology used in this Advisory**

Resources consulted
- Burkitt Lymphoma: NCBI
- Burkitt lymphoma: PubMed Health
- Hodgkin Disease: Medline Plus
- Hodgkin Lymphoma: National Cancer Institute
- Hodgkin's lymphoma: PubMed Health
- Lymphatic Diseases: Medline Plus
- Lymphatic System: National Cancer Institute
- Lymphoma: MedLine Plus
- Non-Hodgkin Lymphoma: National Cancer Institute
- Non-Hodgkin's lymphoma: PubMed Health

Lymphoma, lymphatic system cancer, of which there are several types, of which
1. one is Hodgkin lymphoma
2. all the others are termed non-Hodgkin lymphoma.
Other terminology includes

1. **Anaplastic**, refers to cells that become less differentiated as they are increasingly affected by disease.

2. **Burkitt lymphoma**, Burkitt’s lymphoma, a rare form of cancer that is
   a. of three types
      i. African (endemic), predominantly affecting young children in Central Africa, appears to be associated with infection by the Epstein-Barr virus
      ii. American (sporadic)
      iii. associated with human immunodeficiency virus (CDHO Advisory)
   b. is believed to be the fastest growing malignant tumour to affect humans, which
      i. can double in size in 24 hours
      ii. is rapidly progressive.

3. **Epstein-Barr virus**, a common virus that
   a. remains dormant in most people
   b. causes infectious mononucleosis
   c. has been associated with certain cancers, including
      i. *Burkitt lymphoma*
      ii. *immunoblastic large cell lymphoma*
      iii. nasopharyngeal carcinoma.

4. **Erythropoiesis**, the process by which the stem cells in the bone marrow produce red blood cells.

5. **High-dose chemotherapy with stem cell transplantation**, giving high doses of chemotherapy and replacing blood-forming cells destroyed by the chemotherapy with stem cells from the person prior to treatment, or from a donor.


7. **Hodgkin lymphoma**, Hodgkin disease, a cancer of the immune system
   a. characterized by
      i. the presence of a type of cell called the *Reed-Sternberg cell*
      ii. symptoms that include
         1. painless enlargement of lymph nodes, spleen, or other immune tissue
         2. fever
         3. weight loss
         4. fatigue
         5. night sweats
   b. of two major types
      i. classical *Hodgkin lymphoma*
      ii. lymphocyte-predominant Hodgkin lymphoma (rare).

8. **Hypogammaglobulinemia**, lack of *B-lymphocytes* that reduces the immunoglobulins, which are antibodies to a low level in the blood.

9. **Human T-cell lymphotropic virus**
   a. the first human retrovirus discovered
   b. predominantly affects *T lymphocytes*.


11. **Lymphatic system**, which
   a. functions as
i. an important component of the immune system
ii. a filtration system that removes harmful bacteria, viruses and particles from the tissues
iii. a drainage system from the tissues back into the blood stream

b. comprises
   i. lymph, a clear watery fluid filtered in lymph nodes from blood plasma, which contains lymphocytes
   ii. lymphatics, a network of thin, permeable tubes that drain lymph from the tissues
   iii. lymph ducts, lymph vessels, alternate terminology for lymphatics
   iv. lymph nodes, which in the normal state
      1. are bean shaped
      2. range from a few millimeters to 2 centimeters in size
   v. lymphatic organs, comprising
      1. bone marrow, which makes
         a. white blood cells
         b. red blood cells
         c. platelets
      2. lymph nodes
      3. spleen, which
         a. makes lymphocytes
         b. filters the blood
         c. stores blood cells
         d. destroys old blood cells
      4. thymus, in which lymphocytes grow and multiply
      5. tonsils, which make lymphocytes

vi. lymphocytes, a type of white blood cell, which
   1. comprise
      a. B-lymphocytes (B-cells) that mature in the bone marrow
      b. T-lymphocytes (T-cells) that mature in the thymus
   2. protect against infections and tumours.

12. Lymphoblast, immature white blood cell.
13. Monoclonal antibody, any member of a class of antibodies produced in the laboratory from a single clone of cells or cell line that consists of identical antibody molecules.

14. Non-Hodgkin lymphoma
   a. is any member of a large group of cancers of lymphocytes
   b. exists as many different types
   c. occurs at any age
   d. is often characterized by
      i. lymph node enlargement
      ii. fever
      iii. weight loss
   e. varies among types
      i. in rate of growth
         1. aggressive (fast-growing)
         2. indolent (slow-growing)
      ii. in prognosis
iii. in origin, variously involving
   1. disorders of B-cells, which
      a. characterize
         i. Burkitt lymphoma
         ii. small lymphocytic lymphoma
         iii. immunoblastic large cell lymphoma
      b. manifest typically after bone marrow or stem cell transplantation
   2. disorders of T-cells, which characterize
      a. anaplastic large cell lymphoma
      b. precursor T-lymphoblastic lymphoma.

15. Paresthesia, sensation in the skin without apparent physical cause
    a. such as burning, prickling, itching, or tingling
    b. when associated with pain or swelling of the jaws may signal underlying malignant tumour.

16. Precursor T-lymphoblastic lymphoma, type of non-Hodgkin lymphoma in which too many T-cell lymphoblasts exist in the lymph nodes and spleen.

17. Radioimmunotherapy, involves
    a. linking a radioactive substance to an antibody that targets the cancerous cells
    b. injecting the linked substance into the body.

18. Reed-Sternberg cell, large abnormal cell characteristic of Hodgkin lymphoma.

19. Stem cells, which
    a. are capable of development into various cell types during early life and growth
    b. exist in the bone marrow, where they differentiate into red and white blood cells.

20. Stem cell transplantation
    a. is preceded by high doses of chemotherapy and or radiation, which destroys normal as well as abnormal cells in the bone marrow
    b. replaces the destroyed normal cells
    c. involves
       i. bone marrow transplantation
       ii. blood
       iii. umbilical cord blood
          1. directly from a newborn baby
          2. from a frozen store
    d. is sourced from
       i. the person’s own stem cells
       ii. a donor with matching cells
       iii. the person’s healthy identical twin.

Overview of lymphoma

Resources consulted
- Burkitt Lymphoma: NCBI
- Burkitt lymphoma: PubMed Health
- Hodgkin Disease: Medline Plus
- Hodgkin Lymphoma: National Cancer Institute
- Hodgkin’s lymphoma: PubMed Health
Occurrence
1. **Hodgkin lymphoma** occurs
   a. most commonly in the age ranges
      i. 15 - 35
      ii. 50 – 70
   b. usually first in a lymph node above the diaphragm
   c. but may start almost anywhere in the body because lymphatic tissue is so widely dispersed in
      i. lymph nodes
      ii. spleen
      iii. liver
      iv. bone marrow.
2. **Non-Hodgkin lymphoma** occurs
   a. in about two percent of the population
   b. as many different types, including
      i. low grade (slow growing), such as follicular lymphoma
      ii. intermediate grade
      iii. high grade (fast growing), such as Burkitt's lymphoma
   c. slightly more commonly in men than in women
   d. most commonly in adults, though it also may occur in children.

Cause
1. **Hodgkin lymphoma** cause
   is mostly unknown.
2. **Non-Hodgkin lymphoma** cause
   is mostly unknown.

Risk factors
1. **Hodgkin lymphoma** risk factors
   a. include HIV/AIDS infection (CDHO Advisory)
   b. may include prior infection with the Epstein-Barr virus
   c. an immune system weakened by
      i. an inherited condition
      ii. medications used after an organ transplant
   d. a family history, especially of brothers and sisters, with Hodgkin lymphoma or other lymphomas.
2. **Non-Hodgkin lymphoma** risk factors
   a. are associated with weakened immune systems
   b. in adults include
      i. inherited immune disorder, such as hypogammaglobulinemia
      ii. autoimmune disease, such as psoriasis
2. rheumatoid arthritis (CDHO Advisory)
3. Sjögren syndrome (CDHO Advisory)

iii. immunosuppressant drugs after an organ transplant
iv. infections, such as
   1. HIV/AIDS (CDHO Advisory)
   2. human T-lymphotrophic virus
   3. Epstein-Barr virus
   4. history of Helicobacter pylori infection
v. exposure to certain pesticides
vi. diet high in meats and fat
vii. past treatment for Hodgkin lymphoma.

**Signs and symptoms**

1. **Hodgkin lymphoma** signs and symptoms are chiefly non-specific, such as
   a. oral signs
   b. appetite loss
   c. coughing, breathing difficulty, or chest pain
   d. drenching night sweats
   e. enlarged but painless lymph nodes in the
      i. groin
      ii. neck
      iii. underarms
   f. fatigue
   g. fever that is persistent
   h. itchy skin
      i. night sweats, excessive and soaking
   j. pain or feeling of fullness below the ribs associated with enlarged spleen or liver
   k. unusual effects of alcohol
      i. increasing sensitivity to alcohol
      ii. painful lymph nodes after taking alcohol
   l. weakness and fatigue that are persistent
   m. weight loss.

2. **Non-Hodgkin lymphoma** signs and symptoms are chiefly non-specific, such as
   a. oral signs
   b. drenching night sweats
   c. fatigue
   d. fever for no known reason
   e. pain for no known reason variously in the
      i. abdomen
      ii. bones
      iii. chest
   f. painless enlargement of lymph nodes variously in the
      i. abdomen
      ii. groin
      iii. neck
      iv. underarm
g. skin rash or itchy skin
h. weight loss
i. depend on
   i. the parts of the body affected by the cancer
   ii. how fast the cancer is growing
j. may include
   i. cough or shortness of breath if the cancer affects the thymus or the
      lymph nodes in the chest
   ii. abdominal pain or distension, which may lead to
      1. constipation
      2. loss of appetite
      3. nausea
      4. vomiting
   iii. neurological effects and mental changes if the brain is affected,
      including
      1. concentration problems
      2. headache
      3. personality changes
      4. seizures.

Medical investigation
1. **Hodgkin lymphoma** investigation includes
   a. physical examination for
      i. enlarged lymph nodes in the neck, underarms, and groin
      ii. enlarged spleen or liver
   b. biopsy to detect **Reed-Sternberg cells** in
      i. lymph nodes
      ii. bone marrow
   c. complete blood count
   d. chest x-rays
   e. CT scans of the chest, abdomen, and pelvis
   f. kidney function tests
   g. liver function tests
   h. PET scan
   i. staging.
2. **Non-Hodgkin lymphoma**
   a. physical examination for enlarged lymph nodes in the various body areas
   b. biopsy to detect **Reed-Sternberg cells**
      i. lymph node
      ii. bone marrow
   c. complete blood count
   d. CT scans of the chest, abdomen, and pelvis
   e. kidney function tests
   f. liver function tests
   g. PET scan
   h. staging.
Treatment

1. **Hodgkin lymphoma** treatment
   a. is matched to
      i. age
      ii. **comorbidities, complications and associated conditions**
      iii. debilitation, including weight loss, night sweats, and fever
      iv. stage of the disease, assessed by its spread
      v. tumour dimensions
      vi. **type of Hodgkin's lymphoma**
   b. includes, variously
      i. antibiotics
      ii. blood transfusion
      iii. bone marrow transplant
      iv. medications
      v. **stem cell transplantation**
      vi. chemotherapy
      vii. radiation therapy.

2. **Non-Hodgkin lymphoma** treatment
   a. depends on
      i. age and overall health
      ii. stage of the cancer when first diagnosed
      iii. symptoms, including weight loss, fever, and night sweats
      iv. type of lymphoma
   b. includes variously
      i. antibiotics and other medications
      ii. blood transfusion
      iii. bone marrow transplant
      iv. chemotherapy, the main type of treatment
      v. radiation therapy
      vi. **radioimmunotherapy**
      vii. **stem cell transplantation**
      viii. targeted therapy, uses **monoclonal antibody therapy**, among other methods, to identify and attack specific cancer cells without harming normal cells
   c. for lymphoma that returns after treatment or that does not respond to treatment includes
      i. **high-dose chemotherapy**
      ii. followed by a bone marrow transplant of the person’s own stem cells.

Prevention

**Lymphoma**
lacks any known means of prevention.

Prognosis

1. **Hodgkin lymphoma** prognosis with appropriate treatment
   a. is good in that
      i. 90 percent or more of persons with early-stage disease survive for at least 10 years
ii. 90 percent of persons with advanced-stage disease survive 5 years
iii. persons who survive 15 years after treatment are more likely to later die from other causes other than Hodgkin lymphoma

b. is less good for persons
   i. whose disease returns within a year after treatment
   ii. who do not respond to early treatment.

2. **Non-Hodgkin lymphoma** prognosis
   a. expressed as survival rates
      i. have greatly improved since the early 1990s
         1. especially for persons under age 45
         2. as a result of advances in treatment
      ii. excluding deaths from causes other than non-Hodgkin lymphoma
         1. 63 percent of persons have a 5-year survival rate
         2. 51 percent of persons have a 10-year survival rate
   b. is nevertheless difficult to assess because it varies with
      i. lymphoma type
         1. fast-growing aggressive lymphomas are often symptomatic early on and are potentially curable with aggressive treatments
         2. slow-growing lymphomas are asymptomatic until they reach the advanced stages, which makes them difficult to cure
      ii. stage of the condition
      iii. age of the person
      iv. whether the lymphoma is a recent diagnosis or a recurrence.

**Social considerations**

Support groups
- American Cancer Society
- Canadian Cancer Society
- Cancer Care
- Joining a Lymphoma Support Group
- Lymphoma Foundation Canada
- Lymphoma Support Group of Ottawa
- National Cancer Institute

**Multimedia and images**

- Anatomy of the lymph system
- Hodgkin's disease, liver involvement
- Immune system structures

**Comorbidity, complications and associated conditions**

Comorbid conditions are those which co-exist with lymphoma but which are not believed to be caused by it. Complications and associated conditions are those that may have some link with it. Distinguishing among comorbid conditions, complications and associated conditions may be difficult in clinical practice.
Comorbid conditions, complications and associated conditions for lymphoma include the following.

1. **Hodgkin lymphoma**  
   Complications of treatments include  
   a. dosages of chemotherapy medications that are  
      i. usual can cause serious side effects in quickly dividing tissues such as bone marrow  
      ii. that are higher than usual doses  
         1. could be more effective in treating Hodgkin disease  
         2. but are not used because the severe damage to the bone marrow would cause life-threatening  
            a. deficiencies of blood cells  
            b. damage to vital organs  
   b. long-term complications and side effects of chemotherapy or radiation therapy, such as  
      i. bone marrow diseases, such as leukemia (CDHO Advisory)  
      ii. heart disease  
      iii. infertility  
      iv. lung disease  
      v. other cancers  
      vi. thyroid disease  
      vii. low blood cell counts, which may increase the risk of  
         1. bleeding  
         2. infection, which  
            a. should always be taken seriously during cancer treatment  
            b. requires prompt medical attention to fever or other signs of infection  
         3. anemia, which requires planning of daily activities with scheduled rest periods to help anemia-related fatigue.  
   c. HIV-positive status, which increases substantially the risk of malignant disease, including AIDS-related cancers.

2. **Non-Hodgkin lymphoma**  
   a. autoimmune hemolytic anemia  
   b. infection  
   c. long-term complications and side effects of chemotherapy or radiation therapy, including  
      i. bone marrow diseases, such as leukemia (CDHO Advisory)  
      ii. heart disease  
      iii. infertility  
      iv. lung disease  
      v. other cancers  
      vi. thyroid disease  
      vii. low blood cell counts, which may increase the risk of  
         1. bleeding  
         2. infection  
         3. anemia
3. Treatment complications when lymphomas co-exist with pregnancy, include
   a. **non-Hodgkin lymphomas** occurring during pregnancy tend to be aggressive so that
      i. delaying treatment until after the baby is born may reduce the mother’s chance of survival
      ii. immediate treatment is often recommended during pregnancy
   b. radiation therapy, chemotherapy and some anti-cancer medications which pass from the mother to the fetus
      i. create risks to the fetus, so treatment decisions should take account of
        1. protection of the fetus
        2. the trimester of the pregnancy
        3. the mother’s wishes
      ii. uses a lead shield to protect the fetus from direct radiation, though the shield may not protect against scattered radiation
      iii. is postponed where possible until after delivery
   c. HIV-positive status, which increases substantially the risk of malignant disease, including AIDS-related cancers.

**Oral health considerations**

Resources consulted

- **Dental Implications of Helicobacter pylori: Journal of the Canadian Dental Association**
- **Nonsquamous Cell Malignant Tumours of the Oral Cavity: An Overview | Journal of the Canadian Dental Association**
- **Oral Cancer: Journal of the Canadian Dental Association**
- **Oral Kaposi’s Sarcoma in a Renal Transplant Patient: Case Report and Literature Review | Journal of the Canadian Dental Association**
- **Sinonasal Undifferentiated Carcinoma of the Maxillary Sinus: Journal of the Canadian Dental Association**
- **Sporadic Burkitt’s Lymphoma of the Jaws: The Essentials of Prompt Life-saving Referral and Management | Journal of the Canadian Dental Association**

1. Early oral presentation of lymphoma, other oral cancer, or other serious illness creates important though uncommon opportunities for dental hygienists to contribute to health promotion and disease prevention, as well as oral health, because
   a. persons may be unaware of surprisingly large intraoral lesions if the lesions are slow-growing and asymptomatic
   b. persons who do eventually become aware of an intraoral lesion may mistakenly assume that if it is painless it is harmless
   c. oral lesions may arise before the diagnosis is established for the underlying disease, such as
      i. lymphoma
      ii. **human immunodeficiency virus** infection.

2. Oral signs of
   a. lymphoma may
      i. present as soft-tissue masses with ulceration and tissue necrosis that frequently involve the mucosa of the
        1. alveoli
2. gingivae
3. palate
   ii. present as soft-tissue masses without ulceration and tissue necrosis
   iii. mimic periodontal disease
b. endemic Burkitt lymphoma, which is usually diagnosed between the ages of 5 and 7 years, involve
   i. the jaws
   ii. often other facial bones

   c. sporadic Burkitt lymphoma, which occurs in children of 12 years average age
   i. often involve the head and neck, most commonly in the form of enlarged cervical lymph nodes
   ii. sometimes present as maxillofacial bone involvement

d. adult Burkitt’s lymphoma, which almost always coexists with AIDS, call for prompt, urgent referral
   i. because life-threatening complications, which occur suddenly and unexpectedly, include
      1. abdominal obstruction
      2. acute renal failure
      3. airway obstruction
   ii. when a child presents with
      1. unexplained
         a. hypermobility of teeth in the absence of end-stage periodontitis or periodontal abscess
         b. displacement of developing teeth from their crypts
         c. paresthesia of the cheek
      2. supra-eruption of permanent teeth
      3. severe alveolar bone resorption around teeth, in the absence of signs of periodontal disease

e. non-Hodgkin’s lymphomas in the mouth
   i. usually present as red or purple rubbery masses, in middle-aged and older persons most commonly occurring on
      1. the palatal mucosa
      2. buccal vestibule or gingivae
   ii. may also present within the jaw bones, producing one or both of
      1. vague pain
      2. paresthesia
   iii. may be associated with enlargement of the cervical lymph nodes
   iv. are likely to be associated with non-oral signs and symptoms

f. lymphoma of unspecified type
   i. in the oral cavity is a risk for long-term transplant survivors
   ii. may occur as nodules at the hard and soft palate junction.

3. Particular attention is required to
   a. bleeding, which may require application of ice and pressure
   b. infection, which requires medical attention especially in the presence of fever or other signs of infection.

4. Dental x-rays during radiation therapy should be avoided except in emergencies and then with prior consultation with the appropriate primary or specialist care provider.

5. Debilitation, which accompanies the lymphomas especially in their later stages
a. requires consideration by the dental hygienist
b. requires scheduling and duration of appointments to reflect
   i. respect for the patient/client’s scheduled rest periods
   ii. the need to combat fatigue associated with anemia (CDHO Advisory)
c. should not discourage oral healthcare unless medical advice suggests otherwise.

MEDICATIONS SUMMARY

Sourcing medications information

1. Adverse effect databases
   Health Canada’s Marketed Health Products Directorate
toll-free 1-866-234-2345
   Health Canada’s Drug Product Database

2. Specialized organizations
   ▪ US National Library of Medicine and the National Institutes of Health Medline Plus
     Drug Information
   ▪ WebMD

3. Medications considerations
   All medications have potential side effects whether taken alone or in combination with
   other prescription medications, or as over-the-counter (OTC) or herbal medications.

4. Information on herbals and supplements
   US National Library of Medicine and the National Institutes of Health Medline Plus
   Drug Information All Herbs and Supplements

5. Complementary and alternative medicine
   National Center for Complementary and Alternative Medicine

Types of medications

1. Anticancer medications
   a. alkylating agents
      ▪ chlorambucil (Leukeran®)
      ▪ lomustine (CeeNU®)
   b. biologic anticancer agents, including
      ▪ monoclonal antibodies
      ▪ rituximab (Rituxan®)

2. Chemotherapy, including
   ▪ bleomycin (Blenoxane®)
   ▪ cyclophosphamide (Cytoxan®, Neosar®)
   ▪ dacarbazine (DTIC-Dome®)
   ▪ doxorubicin (Adriamycin®, Doxil®, Rubex®)
   ▪ epirubicin (Ellence®)
   ▪ mechlorethamine (Mustargen®)
   ▪ prednisone (Prednisone Intensol®, Sterapred®)
- procarbazine (Matulane®)
- vinblastine (Velban®)
- vincristine (Oncovin®, Vincasar®)

3. Chemotherapy associated with
   a. bone marrow transplantation
   b. radiation therapy

4. Erythropoiesis-stimulating agents
   - epoetin alfa injection (Epogen®, Procrit®)

5. Interferon
   - Interferon Alfa-2a and Alfa-2b Injection (Intron A (alfa-2b), Roferon-A (alfa-2a))

6. Stem-cell transplantation

7. Medications used for lymphoma co-existing with HIV/AIDS
   a. chemotherapy
   b. Highly Active Antiretroviral Therapy, used to
      i. suppress HIV viral replication
      ii. halt or delay the progression of HIV/AIDS
   c. prophylaxis for infections associated with HIV/AIDS

**Side effects of medications**

See the links above to the specific medications.

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**THE MEDICAL AND MEDICATIONS HISTORY**

The dental hygienist in taking the medical and medications history-taking should

1. focus on screening the patient/client prior to treatment decision relative to
   a. key symptoms
   b. medications considerations
   c. contraindications
   d. complications
   e. comorbidities
   f. associated conditions

2. explore the need for advice from the treating physician

3. inquire about
   a. pointers in the history of significance to lymphoma, excessive bleeding
   b. symptoms indicative of inadequate control of lymphoma, such as fatigue
   c. the patient/client’s understanding and acceptance of the need for oral healthcare
   d. medications considerations, including over-the-counter medications, herbals and supplements
   e. problems with previous dental/dental hygiene care
   f. problems with infections generally and specifically associated with dental/dental hygiene care
   g. the patient/client’s current state of health
   h. how the patient/client’s current symptoms relate to
      i. oral health
      ii. health generally
      iii. recent changes in the patient/client’s condition.
### IDENTIFYING AND CONTACTING THE MOST APPROPRIATE HEALTHCARE PROVIDER(S) FOR ADVICE

Identifying and contacting the most appropriate healthcare provider(s) from whom to obtain medical or other advice pertinent to a particular patient/client

The dental hygienist should

1. record the name of the physician/primary care provider most closely associated with the patient/client’s healthcare, and the telephone number
2. obtain from the patient/client or parent/guardian written, informed consent to contact the identified physician/primary healthcare provider
3. use a consent/medical consultation form, and be prepared to fax the form to the provider
4. include on the form a standardized statement of the Procedures proposed, with a request for advice on proceeding or not at the particular time, and any precautions to be observed.

### UNDERSTANDING AND TAKING APPROPRIATE PRECAUTIONS

**Infection Control**

Dental hygienists are required to keep their practices current with infection control policies and procedures, especially in relation to

1. the Recommendations published by the Centers for Disease Control and Prevention (a frequently updated resource)
2. relevant occupational health and safety legislative requirements
3. relevant public health legislative requirements
4. best practices or other protocols specific to the medical condition of the patient/client.

### DECIDING WHEN AND WHEN NOT TO INITIATE THE PROCEDURES PROPOSED

The dental hygienist

1. should consult with the treating physician or specialist care provider(s) to obtain clearance for implementing the Procedures.
2. may postpone the Procedures pending medical advice if the patient/client
   a. appears debilitated
   b. is experiencing symptoms suggestive of complications of lymphoma or its treatment
   c. has not complied with pre-medication, including antibiotic prophylaxis, as directed by the prescribing physician
   d. has recently changed significant medications, under medical advice or otherwise
   e. recently experienced changes in his/her medical condition such as medication or other side effects of treatment
   f. is unable to provide the dental hygienist with sufficient information about
      i. bleeding problems
      ii. medications
   g. has undergone or is about to chemotherapy or radiation therapy
   h. has a history of oral healthcare that required
      i. antibiotic prophylaxis
ii. pre-medication
   i. has symptoms or signs of
      i. anemia
      ii. debilitation
   j. has a history of comorbidity, complication or an associated condition of lymphoma
   k. has not recently or ever sought and received medical advice relative to oral healthcare procedures
   l. is deeply concerned about any aspect of his or her medical condition.

DEALING WITH ANY ADVERSE EVENTS ARISING DURING THE PROCEDURES

Dental hygienists are required to initiate emergency protocols as required by the College of Dental Hygienists of Ontario’s Standards of Practice, and as appropriate for the condition of the patient/client.

First-aid provisions and responses as required for current certification in first aid.

RECORD KEEPING

Subject to Ontario Regulation 9/08 Part III.1, Records, in particular S 12.1 (1) and (2) for a patient/client with a history of lymphoma, the dental hygienist should specifically record
1. a summary of the medical and medications history
2. any advice received from the physician/primary care provider relative to the patient/client’s condition
3. the decision made by the dental hygienist, with reasons
4. compliance with the precautions required
5. all Procedure(s) used
6. any advice given to the patient/client.

ADVISING THE PATIENT/CLIENT

The dental hygienists should
1. urge the patient/client to alert any healthcare professional who proposes any intervention or test
   a. that he or she has a history of lymphoma
   b. to the medications he or she is taking
2. should discuss, as appropriate
   a. the importance of the patient/client’s
      i. self-checking the mouth regularly for new signs or symptoms
      ii. reporting to the appropriate healthcare provider any changes in the mouth
   b. the need for regular oral health examinations and preventive oral healthcare
   c. oral self-care including information about
      i. choice of toothpaste
      ii. the need to reduce the risk of bleeding by means of
         1. tooth-brushing techniques and related devices
         2. electric razors
      iii. dental flossing
iv. mouth rinses  
v. management of a dry mouth  
d. the importance of an appropriate diet in the maintenance of oral health  
e. for persons at an advanced stage of a disease or debilitation  
   i. regimens for oral hygiene as a component of supportive care and palliative care  
   ii. the role of the family caregiver, with emphasis on maintaining an infection-free environment through hand-washing and, if appropriate, wearing gloves  
   iii. scheduling and duration of appointments to minimize stress and fatigue  
f. comfort level while reclining, and stress and anxiety related to the Procedures  
g. medication side effects such as dry mouth, and recommend treatment  
h. mouth ulcers and other conditions of the mouth relating to lymphoma, comorbidities, complications or associated conditions, medications or diet  
i. pain management.

## BENEFITS/HARMS OF IMPLEMENTING THE RECOMMENDATIONS

### POTENTIAL BENEFITS

1. Promoting health through oral hygiene for persons who have lymphoma.  
2. Recognizing oral conditions, especially those that are asymptomatic, that require referral.  
3. Reducing of the adverse effects of prolonged oral healthcare appointments on patients/clients who are debilitated by  
   a. generally increasing the comfort level of persons in the course of dental-hygiene interventions  
   b. using appropriate techniques of communication  
   c. providing advice on scheduling and duration of appointments.  
4. Reducing the risk of oral health needs being unmet.

### POTENTIAL HARMS

1. Causing delay in diagnosis through failure to get advice on oral health conditions which the dental hygienist does not recognise and about which the patient/client is relatively unconcerned.  
2. Performing the Procedures at an inappropriate time, such as  
   a. in the absence of clearance from the appropriate physician or specialist service providers  
   b. when the patient/client is receiving treatment which requires deferral of oral healthcare interventions until the treatment is completed or medical clearance is given  
   c. in the presence of complications for which prior medical advice is required  
   d. in the presence of acute oral infection without prior medical advice.  
3. Disturbing the normal dietary and medications routine of a person with lymphoma.  
4. Inappropriate management of pain or medication.
## Contraindications

### Contraindications in Regulations

Identified in the *Dental Hygiene Act, 1991 – O. Reg. 218/94 Part III*

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