### 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 brain tumours.

### ADVISORY STATUS
Cite as

*College of Dental Hygienists of Ontario, CDHO Advisory Brain Tumours 2011-07-01*

### 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)**

Brain tumours

**INTENDED USERS**

<table>
<thead>
<tr>
<th>Advanced practice nurses</th>
<th>Dentists</th>
<th>Denturists</th>
<th>Dieticians</th>
<th>Health professional students</th>
<th>Nurses</th>
<th>Patients/clients</th>
<th>Pharmacists</th>
<th>Physicians</th>
<th>Public health departments</th>
<th>Regulatory bodies</th>
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**ADVISORY OBJECTIVE(S)**

To guide dental hygienists at the point of care relative to the use of the Procedures for persons who have brain tumours, 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.

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\(^1\) 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 brain tumours.

MAJOR OUTCOMES CONSIDERED

For persons who have brain tumours: 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

- Germ cell tumors of the brain: Children’s Hospital Boston
- General Information About Adult Brain Tumors: National Cancer Institute

Brain tumours, cerebral tumours, are tumours that
1. are classified as
   a. primary tumours, which are of two types
      i. benign tumours, which
         1. develop within the brain and do not spread to or from the brain
         2. do not comprise malignant cells
         3. are not harmless because they cause harm by compressing
            a. surrounding tissues
            b. structures within the skull
      ii. malignant tumours
   b. secondary tumours, which
      i. spread to the brain from tumours elsewhere in the body
2. Mostly are of unknown cause
3. May occur at any age
4. Create symptoms and signs that depend on the tumour’s size and location in the brain.

Other terminology used in this Advisory is as follows.

1. Benign tumours of the brain, which create signs and symptoms no one of which is unique to brain tumours, including
   a. Balance problems
   b. Change in sense of smell
   c. Changes in mental ability, such as
      i. Concentration
      ii. Memory
      iii. Speech
   d. Facial paralysis
   e. Headaches
   f. Hearing problems
   g. Nausea and vomiting
   h. Seizures
   i. Vision problems.
2. Germ cells, primitive cells that
   a. Develop in the embryo
   b. Normally create the reproductive system.
3. Glial cell, a supportive cell of the central nervous system which differs from a neuron.
4. Malignant tumours of the brain are
   a. Generally serious
   b. Often life threatening
   c. Likely to grow rapidly and cause damage by
      i. Exerting pressure on surrounding healthy brain tissue
      ii. Invading surrounding healthy brain tissue.
5. Neurons are
   a. Cells of the nervous system that are specialized to carry electrochemical messages
   b. Classified by the direction in which they send the messages
      i. Sensory neurons, also called afferent neurons, which send messages from sensory receptors to the central nervous system
      ii. Motor neurons, also called efferent neurons, which
         1. Send messages from the central nervous system to muscles or glands
         2. Comprise
            a. Upper motor neurons, which reside in the part of the brain’s cortex that governs movement
            b. Lower motor neurons, which reside in the spinal cord
      c. Include interneurons, which transmit messages between sensory neurons and motor neurons.
6. Primary tumours of the brain are named according to either the
   a. Part of the brain or nerves close to the brain in which they arise
b. type of cells they comprise
c. include
   i. acoustic neuroma, a benign tumour which arises
      1. in the vestibular nerve, which controls balance
      2. in the cochlear nerve, which serves hearing
      3. most often in adults
   ii. astrocytoma, a malignant tumour which arises
       1. from astrocytes, star-shaped glial cells
       2. in adults, most often in the cerebrum
       3. in children, most often in the
          a. brain stem
          b. cerebellum
          c. cerebrum
   iii. brain stem glioma, a malignant tumour which arises
        1. in the lowest part of the brain
        2. most often in
           a. young children
           b. middle-aged adults
   iv. craniopharyngioma, a benign tumour which arises
       1. at the base of the brain, near the pituitary gland
       2. most often in children
   v. ependymoma, a malignant tumour which arises
      1. from cells that line the
         a. ventricles of the brain
         b. central canal of the spinal cord
      2. most commonly in
         a. children
         b. young adults
   vi. germ cell tumour of the brain, which may be a benign tumour or a malignant tumour, arises
       1. from a germ cell
       2. mostly before the age of 30
   vii. medulloblastoma, a malignant tumour which
        1. arises in the cerebellum
        2. is the most common brain tumour in children
   viii. meningioma, a benign tumour which
        1. arises in the meninges
        2. usually grows slowly
   ix. oligodendroglioma, a malignant tumour which
       1. arises in the cerebral hemispheres, usually in the cerebrum
       2. grows slowly and usually does not spread into surrounding brain tissue
       3. is most common in middle-aged adults.

7. Primary cancer, as distinct from primary brain cancer, refers to the site in the body where the cancerous cells originate before spreading to the brain, where they develop into secondary tumours.

8. Radiation necrosis, death of healthy brain tissue caused by radiation therapy, which may result in
a. death
b. headaches
c. seizures.

9. Secondary tumours in the brain
   a. are also known as metastatic tumours
   b. result from cancer cells spreading from primary cancers in any part of the body, such as
      i. lung
      ii. breast
      iii. colon
      iv. kidney
      v. skin (melanoma)
   c. occur more commonly than primary tumours of the brain
   d. generally have the same type of abnormal cells as the primary cancer
   e. mostly occur in the cerebrum, but may also occur in the cerebellum or brain stem
   f. occur in the brain as multiple tumours
   g. are common among men and women who are middle-aged or elderly

10. Seizure
    a. is manifested as some combination of
       i. sudden alteration of behaviour
       ii. minor physical signs
       iii. thought disturbances
    b. results from a temporary change in the electrical functioning of the brain, particularly in the cortex
    c. occurs with various conditions, and not only brain tumours
    d. has oral risks including
       i. chipping of teeth
       ii. biting of the tongue or cheeks.

11. Shunt, surgical treatment
    a. to drain excess fluid from the brain
    b. that involves a slender tube
       i. placed in a ventricle of the brain
       ii. threaded under the skin to the abdomen or other part of the body.

12. Tumour grade, which is based on microscopy of the tumour tissue, is used to denote malignancy; the higher the grade the more abnormal are the cells and the faster they are likely to spread.

Overview of brain tumours

Resources consulted
- About brain tumours: Brain Tumor foundation of Canada
- Brain Cancer: MedlinePlus
- Brain Neoplasms: Medscape
- Brain Tumor Risk Elevated Long After Epilepsy Diagnosis: Medscape (membership required, free)
- Brain Tumor Treatment: UCSF Medical Center
- Brain Tumor: MedicineNet.com
Brain tumours

1. primary tumours
   a. types include
      i. gliomas, which originate in glial cells, and which are the most common of the primary brain tumours, such as
         1. astrocytoma
         2. brain stem glioma
         3. ependymoma
         4. oligodendrogloma
      ii. non-glioma tumours which do not begin in glial cells, such as
         1. acoustic neuroma
         2. craniopharyngioma
         3. germ cell tumour of the brain
         4. medulloblastoma
         5. meningioma
      iii. tumours of the pituitary gland (CDHO Advisory)
   b. causes
      i. are unknown
      ii. may include genetic factors
   c. risk factors, which increase the chances of development of a primary brain tumour, include
      i. age
         1. most brain tumours are detected in people who are 70 years old or older
         2. brain tumours are the second most common cancer in children
      ii. exposure to workplace radiation and certain workplace chemicals
      iii. family history of glioma may be associated with increased risk of this tumour
      iv. gender
         1. meningiomas are more common in females
         2. brain tumours generally are more common in males
v. race: brain tumours occur more often among white people than among people of other races

2. secondary tumours
   a. are increasing in frequency of occurrence because survival from primary cancers is improving
   b. are more common than primary brain tumours
   c. result from spread from tumours in other parts of the body, such as
      i. bladder cancer
      ii. breast cancer
      iii. kidney cancer
      iv. lung cancer
      v. melanoma
      vi. sarcomas
      vii. testicular and germ cell tumour
   d. press on and invade adjacent parts of the brain
   e. cause swelling of the brain, which increases the intracranial pressure
   f. are associated with symptoms such as
      i. behavioural and cognitive changes
      ii. coordination problems
      iii. headaches
      iv. seizures
   g. are treated variously with
      i. surgery and radiosurgery
      ii. whole brain radiation therapy (CDHO Advisory)
      iii. chemotherapy (CDHO Advisory)
   h. are associated with a prognosis that is poor because
      i. of the absence of a cure for secondary brain tumours
      ii. the tumours spread within and beyond the brain to other parts of the body
      iii. death frequently occurs within two years of diagnosis

3. signs and symptoms of brain tumours generally
   a. vary according to the tumour type, size and location
   b. may be associated with pressure by
      i. the tumour on adjacent brain tissues or nerves
      ii. swelling of the brain
      iii. fluid build-up in the brain
   c. occur with conditions other than brain tumours and are therefore not certain diagnostic indicators; variously include
      i. balancing or walking problems
      ii. changes in mood, personality, concentration or behaviour
      iii. changes in
         1. speech
         2. vision, loss or double vision
         3. hearing
      iv. coordination problems, clumsiness and falling
      v. fever
      vi. headaches, of recent onset or unusual type
      vii. lethargy and fatigue
viii. memory challenges, poor judgment, difficulty solving problems
ix. nausea or vomiting
x. numbness or tingling in the arms or legs
xi. pain and other changes in sensation
xii. personality changes
xiii. seizures
xiv. speech problems
xv. weakness of a body area
d. in children below the age 7, who appear to be especially at risk of cognitive problems which creates difficulties with
i. attention and concentration
ii. memory
iii. mental processing of information
iv. planning, insight, initiative, and organizational competencies
v. visual perception skills

4. medical investigation and diagnosis rests on
   a. the medical history and physical examination
   b. tests such as
      i. CT scan
      ii. MRI
      iii. angiogram
      iv. skull x-ray
      v. spinal tap
      vi. myelogram
    vii. biopsy, including
        1. needle biopsy
        2. stereotactic biopsy
        3. biopsy at the same time as treatment

5. treatment, which
   a. offers no cure for secondary brain tumours
   b. varies
      i. according to the tumour type, size and location
      ii. with the age and state of health of the person
   c. includes some combination of
      i. surgery
      ii. radiation therapy (CDHO Advisory)
      iii. chemotherapy (CDHO Advisory)
   d. supportive or palliative care, including
      i. medication
         1. steroids, commonly used to help relieve brain swelling
         2. anticonvulsants, to prevent or control seizures caused by brain tumours
      ii. shunt

6. prognosis for brain tumours in general
   a. as expressed by survival rate varies widely, and which
      i. depends on the
         1. tumour
            a. type
b. location and size, which determines whether the tumour can be removed surgically or not

c. grade

d. how soon it was detected

2. person’s

a. age

b. ability to function

c. response to treatment

3. presence of comorbidities, complications and associated conditions

ii. has improved with recent advances in surgical and radiation treatments

b. in children

i. is more encouraging because survival rates

1. have dramatically increased following advances in treatment

2. are 5 years or better for 75 percent of children diagnosed with a brain tumour

ii. is less encouraging because of neurological complications associated with the

1. tumour

2. treatment, such as

   a. cranial radiation therapy (CDHO Advisory)

   b. chemotherapy (CDHO Advisory)

   c. as expressed as

      i. life expectancy

         1. secondary brain tumours

            a. without radiation therapy, 1-month mean life expectancy

            b. with radiation therapy, 4 to 6-month mean life expectancy

         2. tumours that result in seizures, 6-month mean life expectancy

      ii. five-year survival rate for all persons with cancerous brain tumours are variously estimated to be

         1. aged 0 to 19 years, 66 percent

         2. aged 15 to 44 years, 55 percent

         3. aged 45 to 64 years, 16 percent

         4. aged 65 years and over, 5 percent

   d. is improved only to a modest degree by

      i. radiation therapy because the dosage of radiation needed to kill cancer cells in the brain also damages sensitive brain tissues, though techniques are improving

      ii. chemotherapy because cancer cells in the brain may become resistant to chemotherapy medications, though the effectiveness of medications is improving

   e. is worsened because malignant brain tumours often recur 6 to 12 months after the initial diagnosis

7. social considerations arising from the particular effects of brain tumours, which

a. are devastating to the person and caregivers

b. can to some extent be alleviated by appropriate support services
c. call for appropriate educational accommodation for children  
d. are supported by resources such as the following in  
   i. Canada  
      1. Childhood Cancer Canada Foundation  
      2. Brain Tumour Foundation of Canada  
      3. Canadian Cancer Society  
   ii. the US  
      1. American Cancer Society  
      2. American Brain Tumor Association  
      3. Candlelighters Childhood Cancer Family Alliance

Multimedia and images

Brain

Comorbidity, complications and associated conditions

Comorbid conditions are those which co-exist with brain tumours 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 of brain tumours include the following.

1. Impairment of mental and neurological function, including  
   a. loss of  
      i. ability to function  
      ii. ability for self-care  
      iii. ability to interact with others  
   b. permanent, progressive, and profound effects on neurological function  
   c. dementia (CDHO Advisory).

2. Side effects of treatment for brain tumours  
   a. generally, which  
      i. arise because treatment may damage healthy cells and tissues, leading to temporary or permanent  
         1. personality changes  
         2. cognitive changes  
         3. seizures  
      ii. may vary  
         1. among persons  
         2. in the same person from time to time  
   b. chemotherapy (CDHO Advisory) and radiation therapy (CDHO Advisory) which slow or stop the growth of rapidly dividing cells but which also affect normal as well as cancer cells, and may thus cause harm to the normal cells of the  
      i. oral mucosa, leading to mouth ulcers  
      ii. intestines, leading to intestinal disorders  
      iii. other tissues
c. surgery, which includes post-operative
   i. headache for the first few days
   ii. fatigue and weakness, which may persist
   iii. edema, which is treated with
       1. steroids
       2. shunt
   d. post-operative infection, treated with antibiotics.

3. Side effects of radiation therapy (CDHO Advisory), which
   a. may be exacerbated when combined with chemotherapy (CDHO Advisory),
      include post-treatment
      i. nausea
      ii. fatigue
      iii. hair loss
      iv. skin redness and other changes
      v. edema of brain tissues, causing headaches
      vi. radiation necrosis
      vii. damage to the pituitary gland and other areas of children’s brains.

4. Side effects of chemotherapy (CDHO Advisory)
   a. depend on the medications employed
   b. commonly include
      i. fever and chills
      ii. nausea and vomiting
      iii. loss of appetite
      iv. weakness.

5. Side effects of medications arising from
   a. medication interactions
   b. duplicate prescriptions

6. Mental-health considerations for survivors of malignant brain tumours who are able to
   return to work and who report
   a. various limitations that affect their work
   b. need for additional time off.

Oral health considerations

Dental hygienists have a key role in relation to the treatment of brain tumours, as follows.

1. Oral health should be optimized before, during, and after cancer treatment because
   many of the oral effects of treatment can be minimized by continuing attention to oral
   hygiene.

2. The continuing attention to oral health
   a. requires
      i. communication and collaboration with
         1. family physicians
         2. specialist services, including
            a. chemotherapy
            b. radiation therapy
            c. dental services specialized for survivors with major
t               dental developmental disorders
d. therapeutic services, such as
   i. dietary and nutritional therapy
   ii. occupational therapy
   iii. physical therapy
   iv. speech and language therapy

e. social services for patients/clients with evidence of
   i. social-stress-related needs
   ii. educational needs

f. family caregivers and support groups

ii. accurate medical histories, especially relating to treatment, including
   1. age at which treatment started
   2. types of treatments received
   3. overview of current regimens for
      a. chemotherapy
      b. radiation therapy
   4. pain medications, specifically in relation to acetaminophen, because
      a. early in 2011, the US FDA reminded healthcare professionals to advise patients
         i. not to exceed the acetaminophen maximum total daily dose of 4 grams/day
         ii. not to consume alcohol while taking acetaminophen-containing medications
      b. a number of the medications used to treat pain from brain tumours may contain acetaminophen
      c. many over-the-counter, non-prescription medications contain acetaminophen
   iii. appropriate liaison with services provided to
      1. survivors of childhood brain tumours, especially those treated from an early age
      2. survivors and persons under treatment for lingering problems
   iv. support for self-care and family caregiving, as appropriate
   v. continuing dental hygiene care scheduled according to needs.

3. Oral side effects of brain cancer treatment
   a. of children who
      i. are under the age of 6 years and who are treated with chemotherapy and or radiation therapy and, as a result, who are at high risk for dental problems, such as
         1. missing adult teeth
         2. weakening of the enamel
         3. short roots
      ii. prior to the brain cancer treatment had pre-existing oral health conditions, such as gum disease, require continuing dental hygiene and other oral healthcare
      iii. are survivors of childhood brain tumours and who
         1. may experience numerous dental problems requiring extensive dental treatment
         2. comprise a population of oral health patients/clients who should be followed carefully for the rest of their lives
iv. are unable for any reason to adequately undertake oral self-care should be assisted by parents who
   1. brush their children’s teeth
   2. encourage their children’s avoidance of a sugar-rich diet
b. of persons with poor mouth care and poor dental health at the time of cancer treatment who, as a result, may subsequently experience increased frequency and severity of oral side effects should be
   i. assisted with oral self-care instruction
   ii. encouraged to continue and maintain good oral hygiene
c. of survivors with major dental developmental disorders which required specialized dental care
d. relate to
   i. chemotherapy which, because of distribution in the blood stream, has the potential to affect any cell in the body, and may
      1. reduce circulating white cells
      2. weaken the immune system
   ii. radiation therapy, which generally affects only cells in the path of the radiation, causes
      1. changes in the salivary glands, resulting in dry mouth
      2. scarring of oral tissue
e. generally may
   i. retard healing
   ii. cause dry mouth, which facilitates tooth decay and infection
   iii. alter taste sensation.

MEDICATIONS SUMMARY

Sourcing medications information

1. Adverse effect database
   ▪ 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. Steroids for treatment of brain edema, which
   a. reduce edema in the brain
   b. help relieve pre-surgery symptoms
   c. may be prescribed at diagnosis, or before or after surgery
   d. do not kill tumour cells
   e. may be taken alone or combined with other forms of treatment
   f. are gradually tapered off when the swelling is under control
   g. include
      - **dexamethasone oral** (Decadron®, Dexamethasone Intensol®)
      - **methylprednisolone oral** (Medrol®, Meprolone®)
      - **prednisone** (Prednisone Intensol®, Sterapred®)

2. Osmotic diuretics to reduce brain edema, including
   a. urea
   b. mannitol

3. Anti-epileptic drugs, also called anticonvulsants, for treatment of seizures, including
   - **carbamazepine** (Carbatrol®, Equetro®, Epitol®, Tegretol®)
   - **gabapentin** (Gabarone®, Neurontin®)
   - **lamotrigine** (Lamictal®)
   - **levetiracetam** (Keppra®)
   - **phenytoin** (Dilantin®, Phenytek®)
   - **topiramate** (Topamax®)
   - **valproic acid** (Depakene®, Depakene®)

4. Chemotherapy drugs prescribed for brain tumour patients, including
   - **carboplatin** (Paraplatin®)
   - **carmustine** (BiCNU®, Gliadel® Wafer)
   - **cisplatin** (Platinol®-AQ)
   - **lomustine** (CeeNU®)
   - **methotrexate** (Rheumatrex®, Trexall®)
   - **procarbazine** (Matulane®)
   - **temozolomide** (Temodar®)
   - **vincristine** (Onocvin®, Vincasar®)

5. Medications to reduce pain and emotional problems
   a. **The WHO Pain Ladder**, which was reviewed in 2010, aims to achieve freedom from cancer pain
      i. as a three-step process in the following order
         1. non-opioids, such as
            - acetaminophen (see warning about acetaminophen)
            - aspirin
            - NSAIDs
         2. weak opioids, such as
            - codeine (numerous brand names)
            - hydrocodone (available only in combination with other medications)
               - hydromorphone oral and rectal (Dilaudid®, Exalgo®, Hydrostat®, Palladone®)
               - oxycodone (Oxycontin®, Percolone®, among others)
3. strong opioids, such as
   - **fentanyl buccal** (transmucosal) (Actiq®, Fentora®)
   - **methadone** (Dolophine®, Methadose®)
   - **morphine oral** (Avinza®, MS Contin®, Roxanol®, among others)
   - **oxymorphone** (Opana®)

   ii. with help from adjuvants, which
      1. should be given at any stage to calm fears and anxiety, and relieve depression
      2. include
         - **anti-anxiety medications**
         - **anticonvulsants**
         - **antidepressants**
         - **hypnotics**
         - **steroids**

6. Antacids or antihistamines to control stress ulcers

**Side effects of medications**

See the links above to the specific medications.

**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
   g. new conditions
2. explore the need for advice from the primary or specialized care provider(s)
3. inquire about
   a. pointers in the history of significance to brain tumours, such as
      i. the types of treatments received
      ii. pain medications taken, prescribed or over-the-counter
   b. indications of difficulties with oral self-care
   c. the patient/client’s understanding and acceptance of the need for oral healthcare
   d. problems with previous dental/dental hygiene care
   e. problems with infections generally and specifically associated with dental/dental hygiene care
   f. the patient/client’s current state of health
   g. 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 not implement the Procedures without prior consultation with the appropriate primary or specialist care provider(s)
   a. if the patient/client’s treatment includes chemotherapy or radiation therapy
   b. if the patient/client has undergone or is about to undergo surgery in connection with a brain tumour
2. may postpone the Procedures pending medical advice if the patient/client
   a. appears debilitated
   b. is experiencing symptoms suggestive of complications of brain tumours or its treatment
   c. has not complied with pre-medication 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. medications
      ii. current or prior treatment
   g. has symptoms or signs of
## CDHO Advisory | Brain Tumours

- i. side effects of treatment or medications
- ii. comorbidity, complication or an associated condition of brain tumours

- h. not recently or ever sought and received medical advice relative to oral healthcare procedures
- i. 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 brain tumours, 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 to
   a. the history of treatment for brain tumour
   b. the pain-relieving medications used

2. should discuss, as appropriate
   a. the importance of
      i. checking the mouth regularly for new signs or symptoms
      ii. reporting 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. tooth-brushing techniques and related devices
      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 brain tumours, 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 or who have received, are receiving or are likely to receive treatment for brain tumours.

2. Reducing the adverse effects, such as oral side effects of brain tumour treatments, by
   a. optimizing oral hygiene before, during and after brain-cancer treatment
   b. communicating and collaborating with healthcare providers
   c. aligning dental hygiene with other therapy services
   d. taking accurate medical and medications histories.

3. Reducing the risk that oral health needs are unmet.

**POTENTIAL HARMs**

1. Causing physical harm through failure to be prepared for the possibility of seizure.

2. Performing the Procedures at an inappropriate time, such as
   a. in the absence of adequate preparations for the possibility of seizure
   b. in the absence of prior, necessary medical advice
   c. in the absence of sufficient attention to the
      i. effects of loss of
         1. mental and neurological function
         2. movement and coordination limitations
      ii. oral side effects of treatments
   d. in the presence of complications for which prior medical advice is required.

3. Disturbing the normal dietary and medications routine of a person with brain tumours.

4. Inappropriate management of pain or medication.

**CONTRAINDICATIONS**

**CONTRAINDICATIONS IN REGULATIONS**

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

**ORIGINALLY DEVELOPED**

2011-07-01

**DATE OF LAST REVIEW**

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