# 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 osteoporosis who may or may not be at risk of osteonecrosis.

## ADVISORY STATUS

Cite as  
*College of Dental Hygienists of Ontario, CDHO Advisory Osteoporosis and Osteonecrosis, 2011-11-01*

## 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)

**Osteoporosis and osteonecrosis**

## 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 osteoporosis who may or may not be at risk of osteonecrosis, chiefly as follows.

1. Understanding the medical condition.  
2. Sourcing medications information.  
3. Taking the medical and medications history.

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\(^1\) Persons includes young persons and children
4. Identifying and contacting the most appropriate healthcare provider(s) for medical advice.
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**

Middle Age (45 to 64 years)
Aged (65 to 79 years)
Aged 80 and over
Male
Female
Parents, guardians, and family caregivers adults with osteoporosis who may or may not be at risk of osteonecrosis.

**MAJOR OUTCOMES CONSIDERED**

For persons who have osteoporosis who may or may not be at risk of osteonecrosis: 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

- Facts and statistics about osteoporosis and its impact: International Osteoporosis Foundation
- Menopause and Osteoporosis Update 2009: Journal of Obstetrics and Gynaecology Canada
- Osteoporosis at-a-glance: Osteoporosis Canada
- Osteoporosis: MedlinePlus
- Osteoporosis: PubMed Health

Osteoporosis

1. is a potentially crippling disease characterized by low bone density and deterioration of bone tissue
2. has osteoporotic fracture as its main clinical consequence.

Osteonecrosis

1. is a severe bone disease
2. involves destruction (necrosis) of bone tissue, often because of interference with the supply of blood to the bone
3. for the purposes of this Advisory is considered only relative to the jaw because of the
   a. obvious relevance to oral healthcare
   b. use of bisphosphonates in the treatment of
      i. certain types of cancer, in which oral hygiene is of particular importance
      ii. osteoporosis, a common condition among the elderly
4. besides the jaws, most commonly affects the joints and bones of the
   a. hips
   b. knees
   c. shoulders
5. is also termed
   a. avascular necrosis of bone
   b. aseptic necrosis
   c. ischemic necrosis of bone.

Other terminology
1. Amenorrhea, absence of menstrual periods for six months or more.
2. Atherosclerosis, disease of large and medium-sized arteries in muscles, which
   a. is characterized by hardening and narrowing of the arteries caused by the
      accumulation of fatty deposits called plaque
   b. may cause a blood clot to form at the site of the narrowing, which
      i. completely blocks the artery
      ii. in a coronary artery, causes myocardial infarction (CDHO Advisory).
3. Bone mineral density testing
   a. measures calcium and other types of minerals in bone
   b. is used to predict risk of future fractures.
4. Calcium and phosphate, minerals essential for normal bone formation.
5. Fragility fracture, occurs with minimal trauma, and is ascribed to osteoporosis.
6. Hyperparathyroidism, excessive production of parathyroid hormone by the parathyroid
   glands.
7. Kyphosis, curving of the spine that causes a bowing or rounding of the back, which
   creates hunchback or slouching posture.
8. Metastatic bone disease, metastasis, spread to bone of cancer that originates in an
   organ such as lung, breast, prostate, kidneys, and thyroid.
9. Osteopenia, where, variously, the
   a. bone mineral density measurement is low but not low enough to be classified as
      osteoporosis
   b. mineral content is identified as low on plain x-ray film.
10. Heel ultrasound, a portable and relatively inexpensive test, which is followed-up with
    bone mineral density testing when the ultrasound indicates low density.

Overview of osteoporosis

Resources consulted
- 2008 National Report Card on Osteoporosis Care: Osteoporosis Canada
- Bone Mineral Density: BC Cancer Agency Osteoporosis Screening Guidelines
- Menopause and Osteoporosis Update 2009: Journal of Obstetrics and Gynaecology Canada
- Fracture Risk Assessment: Osteoporosis Canada
Overview of osteoporosis

**Occurrence of osteoporosis**

- **Osteoporosis**
- 1. is common in middle-aged and older persons, though it can strike at any age
- 2. affects
  - a. one in four or five women over the age of 50
  - b. one in eight men over 50
- 3. results in fractures, which
  - a. often are the first manifestation of osteoporosis, even though its damage to bone may already be well advanced
  - b. involve hip, wrist, or vertebra in one in two of all women with osteoporosis over the age of 50
- 4. is associated with low **bone mineral density** and deterioration of bone tissue, which lead to increased bone fragility and thus considerable risk of fracture, results in osteoporotic fractures
  - a. that, when included with the diagnosis of osteoporosis, comprise a condition more common in the US than coronary disease, stroke and breast cancer
  - b. of which two million Canadians may be at risk during their lifetime.

**Cause of osteoporosis**

- **Osteoporosis**
- 1. arises variously when
  - a. too much old bone is reabsorbed
    - i. during aging when **calcium and phosphate** are reabsorbed within the body from the bones
    - ii. resulting in weakening of bone which causes
      - 1. brittle, fragile bones
      - 2. proneness to fractures, even in the absence of injury
  - b. the body fails to form enough new bone because **calcium and phosphate** are variously
    - i. lacking in the diet
    - ii. insufficiently absorbed from the diet
- 2. has hormonal changes as its leading cause in
  - a. women over age 50, associated with falling natural estrogen in women at the time of **menopause**
  - b. men over age 70, associated with falling testosterone.

**Risk factors of osteoporosis**

- **Osteoporosis** risk factors
- 1. include
  - a. event-based risk factors, that
i. comprise
   1. vertebral compression fracture
   2. non-vertebral fracture with minimal trauma after age 40
ii. signal substantial increase in the risk of future fracture
iii. confirm the diagnosis of osteoporosis regardless of the results of bone mineral density measurement
iv. require initiation of treatment for osteoporosis

b. major risk factors, one or more of which signals need for testing for osteoporosis, such as
   i. age 65 or older
   ii. family history of osteoporotic fracture, especially of maternal hip fracture
   iii. more than 5 months continuous use of glucocorticoid medication
   iv. medical conditions that inhibit absorption of nutrients, such as
      1. celiac disease (CDHO Advisory)
      2. Crohn’s disease (CDHO Advisory)
   v. hyperparathyroidism
   vi. tendency to fall
   vii. osteopenia apparent on x-ray
   viii. hormonal changes not the result of aging
      1. loss of menstrual periods in younger women
      2. low testosterone in men
      3. menopause before age 45

c. other risk factors, of which
   i. some are serious comorbidities requiring appropriate medical care
   ii. two or more signal need for testing for osteoporosis, such as
      1. alcohol consumption that is excessive (CDHO Advisory)
      2. amenorrhea
      3. calcium insufficiency in the diet
      4. chronic kidney disease (CDHO Advisory)
      5. confinement to bed over a prolonged period
      6. eating disorders (CDHO Advisory)
      7. excess caffeine
      8. hormone treatment history for prostate cancer or breast cancer
      9. hyperparathyroidism
     10. hyperthyroidism (CDHO Advisory)
     11. rheumatoid arthritis (CDHO Advisory)
     12. smoking
     13. vitamin D deficiency
     14. weight
        a. less than 57 kg
        b. 10 percent or more below the weight of the person at age 25

d. medication risk factors
   i. corticosteroids (prednisone, methylprednisolone) every day for more than 3 months
   ii. prolonged use of heparin
   iii. prolonged use of anticonvulsants for seizures (CDHO Advisory)
e. risk factors for fracture, which
   i. identify the absolute fracture risk assessed clinically
      1. for postmenopausal women
      2. for men over 50 years
   ii. comprise chiefly
      1. low bone mineral density
      2. prior fragility fracture
      3. more than 3 months continuous use of glucocorticoid medication such as prednisone
      4. age, because the risk of fracture increases with age
      5. family history of osteoprotic fracture.

f. situational risk factors, such as residency in long-term facilities, associated with
   i. advanced age
   ii. low bone mineral density
   iii. multiple medications
   iv. poor function and strength
   v. poor nutrition, which may be associated with poor oral hygiene
   vi. risk for falls

2. relate to types of fractures, such as those of
   a. spine, which
      i. occur in similar numbers in men and women over the age of 50
      ii. increase the mortality rate for men and women
   b. hip, the most devastating type of fracture, because
      i. 80 percent of hip fractures are osteoporosis-related
      ii. some 23 percent of women and 30 percent of men who suffer hip fractures die
         a. within six months of related complications, such as pneumonia or a blood clot
         b. with men more likely to die than women
      iii. 50 per cent of those who survive are permanently disabled
      iv. 25 percent of hip fracture patients who survive for one year cannot walk without assistance
   c. wrist, which commonly result from falls
   d. fragility type, which signal high risk of another fracture
   e. all types, for which, at a given bone mineral density, men appear as prone as women.

**Signs and symptoms of osteoporosis**

**Osteoporosis**

1. is often asymptomatic so that the first warning sign may be a broken bone
2. signs and symptoms, which arise late in the clinical course of osteoporosis, include
   a. bone pain or tenderness
   b. fractures with little or no trauma
   c. height loss, as much as 15 cm, over time
   d. kyphosis
   e. low back pain from vertebral fractures
   f. neck pain from vertebral fractures.
Medical investigation of osteoporosis

Osteoporosis investigation
1. includes examinations and tests of
   a. spine CT to investigate bone mineral density
   b. spine or hip x-ray to investigate fracture or collapse of the spinal bones
   c. blood and urine tests to investigate metabolic causes
2. takes account of risk factors, which are considered in assessments recommended for
   a. all postmenopausal women
   b. men over 50
   c. all persons over the age of 65
   d. persons with
      i. event-based risk factors
      ii. major risk factors
      iii. medication risk factors
      iv. other risk factors
      v. risk factors for fractures
      vi. situational risk factors
3. for diagnosis
   a. involves tests of bone mineral density, which are recommended particularly for persons who
      i. are 65 or older
      ii. are considered high-risk individuals
      iii. have lost four or more centimeters in height overall or two or more centimeters in one year
      iv. have kyphosis
      v. are taking glucocorticoid medication, and who may be losing bone mass
      vi. have recently had a fracture in which osteoporosis is suspected
      vii. already have osteoporosis and who are monitored for effectiveness of the treatment
   b. is suggested by heel ultrasound
4. includes monitoring of trends in bone mineral density, which signal
   a. good response to therapy when the results show stable or increasing density in the absence of trauma fracture, and without loss of height
   b. non-response to therapy when the results show progressive decreases in density that exceed the margin of error of the test.

Treatment of osteoporosis

Osteoporosis treatment
1. aims to
   a. control the pain
   b. slow down or stop the bone loss
   c. prevent bone fractures with medications that strengthen bone
   d. minimize the risk of falls that might cause fractures
2. is managed by
   a. assessment of fracture risk
   b. prevention of fracture and height loss, with
      i. appropriate intake of calcium and vitamin D
      ii. diet control
iii. discontinuation of tobacco and alcohol intake
iv. medications, with regard to risk of the side effect of osteonecrosis of the jaws
v. weight-bearing exercise

3. includes medications used to strengthen bones when
   a. osteoporosis has been diagnosed by a bone mineral density study
   b. osteopenia has been detected following a bone fracture has occurred
   c. surgeries, which are lacking for osteoporosis generally but which may be used for vertebrae
      i. with small fractures
      ii. in need of strengthening

4. is undermined by
   a. insufficient follow-up for osteoporosis following fracture
   b. failure of some patients to comply with anti-osteoporosis treatments.

Prevention of osteoporosis

Osteoporosis prevention involves
1. healthy, well-balanced diet with adequate
   a. calcium and phosphate
   b. protein
   c. Vitamin D
2. healthy lifestyle
   a. avoidance of
      i. excessive consumption of alcohol
      ii. smoking
   b. regular, sufficient exercise
3. falls prevention
   a. appropriate footwear
   b. bathroom safety bars and other domestic safety modifications
   c. care with ice and snow
   d. vision checking and suitable eye glasses
4. medications.

Prognosis of osteoporosis

Osteoporosis prognosis is influenced by the
1. non-reversibility of collapse of vertebrae
2. severity of disability of some persons resulting from the weakening of osteoporotic bone
3. inability to walk independently, which
   a. occurs in about half of persons following hip fracture
   b. is one of the most common reasons for admission to long-term care.

Social considerations of osteoporosis

Osteoporosis places a significant burden on family caregivers who
1. share the anxiety created by the disease
2. are often required to assume additional responsibilities as a result of their family member’s disability and decreased mobility
c. are the target of a policy change in Canadian healthcare policy that
   i. seeks to shift the existing model of chronic disease management from reliance on self-management by the patient to greater involvement of the family caregiver
   ii. increases the care load and associated burdens of responsibility for family caregivers, and aligns with *Aging at Home*, a strategy widely favoured in Canada by
      1. government as a cost-saving measure
      2. the public, as the preferred option, wherever feasible, to institutionalization

2. reduces substantially the quality of life through the association with
   a. decreased independence
   b. disfigurement
   c. functional impairment associated with fractures
   d. increased death rates
   e. lowered self-esteem
   f. reduction or loss of mobility

3. is represented by support groups, such as
   a. Canada
      - [Centre for Studies in Aging & Health at Providence Care](https://www.providencecare.org)
      - [Osteoporosis Canada](https://www.osteo.ca)
   b. US
      - [National Osteoporosis Foundation](https://www.nof.org)
      - [Osteoporosis Support Group, Hospital for Special Surgery, NY](https://www.hss.edu/)

**Overview of osteonecrosis of the jaw**

Resources consulted
- [Bisphosphonate-associated osteonecrosis of mandibular and maxillary bone: Cancer](https://www.cancer.org)
- [Bisphosphonate-Induced Exposed Bone (Osteonecrosis/Osteopetrosis) of the Jaws: Risk Factors, Recognition, Prevention, and Treatment: J Oral Maxillofac Surg](https://www.joms.org)
- [Bisphosphonate-Related Osteonecrosis of the Jaw: Medscape](https://www.medscape.com)
- [Oral Toxicities Not Related to Chemotherapy or Radiation Therapy: National Cancer Institute](https://www.cancer.gov)

**Occurrence of osteonecrosis of the jaw**

*Osteonecrosis*

1. occurs as bisphosphonate-associated osteonecrosis
2. manifests as exposed necrotic bone anywhere in the oral cavity which
   a. persists for 6 to 8 weeks despite the provision of regular oral healthcare
   b. may be accompanied by periodontal disease or other oral health condition, without visible exposed bone
3. is reported in
   a. 6 to 11 percent of persons receiving bisphosphonate intravenously for the treatment of cancer which has *metastasized* to bone
   b. less than 1 percent of persons taking bisphosphonate orally.
**Cause of osteonecrosis of the jaw**

**Osteonecrosis**

1. arises as bisphosphonate-associated osteonecrosis, which is
   a. an oral complication of intravenous bisphosphonate treatment in cancer patients who are not also receiving radiation therapy to the head and neck
   b. believed to be caused by trauma to dental-alveolar structures of which the capacity for bone healing is impaired by the effects of bisphosphonates
2. is not confirmed as having a causal link with low-dose bisphosphonate use in the treatment of osteoporosis.

Osteonecrosis generally, without evidence of relation to bisphosphonate use

1. may arise without identifiable cause
2. has causes that include or may be associated with
   a. disease, such as
      i. atherosclerosis
   ii. diabetes (CDHO Advisory)
   iii. gout
   iv. sickle cell disease (CDHO Advisory)
   v. the effects of excessive alcohol use (CDHO Advisory)
   b. severe trauma, such as a fracture or dislocation, that affects the blood supply to the bone
   c. radiation therapy (CDHO Advisory)
   d. medication, such as long-term treatments with steroids.

**Risk factors of osteonecrosis of the jaw**

**Osteonecrosis** risk factors associated with intravenous bisphosphonate treatment for cancer include

1. duration of medication treatment
2. ill-fitting dentures
3. multiple myeloma
4. recent dental extractions.

**Signs and symptoms of osteonecrosis of the jaw**

**Osteonecrosis** associated with intravenous bisphosphonate treatment for cancer include

1. necrotic mandibular or maxillary bone exposed through lesions in the gingiva that do not heal
2. variously
   a. drainage
   b. infection of the site
   c. inflammation of the soft tissues adjacent to the necrotic bone
   d. pain at the site
   e. secondary infection
3. may be delayed until bone is exposed.

**Medical investigation of osteonecrosis of the jaw**

**Osteonecrosis** diagnosis

1. can be difficult especially if no necrotic bone is visible
2. may be indicated by a draining fistula.
Treatment of osteonecrosis of the jaw

Osteonecrosis treatment includes
1. endodontic and periodontal therapy
2. control of pain
3. control of infection with
   a. antibiotics, as required
   b. topical oral therapy with mouth rinses of chlorhexidine or tetracycline
4. careful local debridement of dead bone, but not wide excision of lesions
5. education of the patient/client with emphasis on the need for
   a. oral hygiene
   b. meticulous brushing and flossing after meals
6. medical consultation, where appropriate about risks of excessive bleeding or infection
7. frequent follow up.

Prevention of osteonecrosis of the jaw

Osteonecrosis prevention involves preventive strategies including removal all foci of dental infection prior to the start of intravenous bisphosphonate treatment for cancer patients with bone metastases.

Prognosis of osteonecrosis of the jaw

Osteonecrosis prognosis appears to be
1. improved by
   a. early diagnosis
   b. minimization or correction of known etiological factors
2. worsened by
   a. recurrence
   b. continuous progression regardless of bisphosphonate use.

Social considerations of osteonecrosis of the jaw

Osteonecrosis social considerations
1. include severe consequences for the quality of life resulting from the lesion’s
   a. progressing to large size
   b. causing necrosis of the cortical bone, which increases the risk of skull fractures
   c. requiring extensive jawbone resection
   d. requiring hospitalization and intravenous antibiotic therapy
2. are recognized by support groups, such as in
   a. Canada
      ▪ Arthritis Society
      ▪ ON/AVN Support Group Int’l Association
   b. USA
      ▪ Center for Osteonecrosis Research and Education (CORE)
      ▪ National Osteonecrosis Foundation
      ▪ The Arthritis Foundation
Comorbidity, complications and associated conditions

Comorbid conditions are those which co-exist with osteoporosis who may or may not be at risk of osteonecrosis 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 osteoporosis who may or may not be at risk of osteonecrosis are as follows.

1. General
   a. celiac disease (CDHO Advisory)
   b. Crohn’s disease (CDHO Advisory)
   c. depression (CDHO Advisory)
   d. disability caused by severely weakened bones
   e. fractures, and their complications
   f. hemophilia (CDHO Advisory)
   g. hypertension (CDHO Advisory)
   h. metastatic breast cancer
   i. multiple myeloma
   j. rheumatoid arthritis (CDHO Advisory), which
      i. is associated with increased incidence of osteoporosis and hip and vertebral fractures
      ii. produces mobility challenges variously from
         1. the arthritis
         2. generalized inflammation
         3. corticosteroid use
   k. schizophrenia (CDHO Advisory)
   l. systemic lupus erythematosus (CDHO Advisory), for which survival rates have improved thereby increasing long-term comorbidity, such as
      i. cardiovascular disease
      ii. infections
      iii. osteoporosis.

2. Women
   a. chronic illnesses, such as anorexia nervosa, leading to malnutrition
   b. excessive exercise, which may cause loss of menstrual cycle with inhibition of the normal production of estrogen
   c. incontinence, which develops in 20 percent of older women hospitalized for hip fracture.
3. Men
   a. up to 50 percent of men with osteoporosis may have secondary causes, such as metastatic bone disease
   b. some 20–25 percent of hip fractures occur in men, in whom the overall mortality
      i. is about 20 percent in the first 12 months after hip fracture
      ii. is higher in men than women
   c. some 30 percent of hip fractures and 20 percent of vertebral fractures occur in men.

Oral health considerations

Resources consulted

- Association between Periodontal Disease and Systemic Disease: Canadian Dental Association
- Optimal Health for Frail Older Adults: Best Practices Along the Continuum of Care | Canadian Dental Association
- Osteoporosis and Its Implications for Dental Patients: Journal of the American Dental Association
- Osteoporosis: University of Arizona

Oral health is important for patients/clients with osteoporosis who may or may not be at risk of osteonecrosis, for reasons chiefly as follows.

Dental hygienists
1. may be called on to provide the Procedures as part of the preventive strategy targeted at removal of all foci of dental infection prior to the start of intravenous bisphosphonates for patients/clients whose cancer has metastasized to bone
2. providing care to patients/clients receiving intravenous bisphosphonates should discuss oral healthcare decisions with the treating physician
3. providing care to residents of long-term facilities should take account of the particular risk of fracture because of poor physical and mental function, which may a. reduce ability for teeth cleaning and other aspects of self-care
   b. result in inadequate nutrition, for which poor oral health may be an additional risk factor
4. should take account of the medications history that reveals continuous use of glucocorticoid medication such as prednisone, because this may a. undermine oral health
   b. contribute to osteoporosis
5. should consider the significant burden that osteoporosis places on family caregivers, who may require encouragement for the maintenance of oral health for persons, especially the elderly, with osteoporosis
6. should through the medical history recognize comorbidities, such as celiac disease and Crohn’s disease, that inhibit absorption of nutrients and in this connection emphasize the importance of good oral hygiene
7. should, given a history of dental infection, consider enhanced monitoring of oral hygiene.
8.
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

Medications
1. Bisphosphonates
   a. to decrease the risk of vertebral, nonvertebral, and hip fractures
      ▪ alendronate (Fosamax®)
      ▪ ibandronate (Boniva®)
      ▪ pamidronate injection (Aredia®)
      ▪ risedronate (Actonel®, Actonel® with Calcium)
      ▪ zoledronic acid injection (Reclast®)
   b. to decrease the risk of vertebral fracture in those at risk
      ▪ etidronate (Didronel®).
2. Selective estrogen receptor modulators to decrease the risk of vertebral fractures
   ▪ raloxifene (Evista®, Keoxifene).
3. Calcitonin, to decrease the risk of vertebral fractures and to reduce pain associated with
   acute vertebral fractures
   ▪ calcitonin salmon nasal spray (Miacalcin®)
   ▪ calcitonin salmon injection.

Side effects of medications

See the links above to the specific medications.

Glucocorticoids with osteonecrosis as a side-effect include
▪ dexamethasone
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 primary or specialized care provider(s)
3. inquire about
   a. pointers in the history of significance to osteoporosis or osteonecrosis
   b. the patient/client’s understanding and acceptance of the need for oral healthcare
   c. medications considerations, including over-the-counter medications, herbals and supplements
   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

1. There is no contraindication to the Procedures.
2. With an otherwise healthy patient/client whose osteoporosis is under control and whose treatment is proceeding normally, the dental hygienist should implement the Procedures, though these may be postponed pending medical advice, which may be required if the patient/client has
   a. a history, symptoms or signs of deteriorating osteoporosis or of osteonecrosis
   b. comorbidity, complication or an associated condition of osteoporosis who may or may not be at risk of osteonecrosis
   c. not recently or ever sought and received medical advice relative to oral healthcare procedures
   d. 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 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 osteoporosis who may or may not be at risk of osteonecrosis, 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 osteoporosis or osteonecrosis
   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. 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 osteoporosis who may or may not be at risk of osteonecrosis, comorbidities, complications or associated conditions, medications or diet
   i. pain management.

POTENTIAL BENEFITS

1. Promoting health through oral hygiene for persons who have osteoporosis or osteonecrosis.
2. Reducing the adverse effects by
   a. reduction of osteonecrosis risk for persons receiving about to receive intravenous bisphosphonate therapy by attention to foci of dental infection
   b. generally increasing the comfort level of persons who have osteoporosis or osteonecrosis in the course of dental hygiene interventions
   c. providing advice on scheduling and duration of appointments.
3. Reducing the risk that oral health needs are unmet.
### POTENTIAL HARMs

1. Causing harm by failing to recognize the importance of
   a. medical advice relative to treatment current or past treatment with intravenous bisphosphonates
   b. appropriate timing oral healthcare for persons prior to their receiving bisphosphonate intravenous therapy.
2. Performing the Procedures at an inappropriate time, such as
   a. when the patient/client has a recent history of osteonecrosis and for whom appropriate specialist advice has not been obtained about the Procedures
   b. in the presence of complications for which prior medical advice is required
   c. in the presence of acute oral infection without prior medical advice.
3. Disturbing the normal dietary and medications routine of a person with osteoporosis who may or may not be at risk of osteonecrosis.
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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