# 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 women during menopause or the post-menopausal phase.

## ADVISORY STATUS

Cite as

*College of Dental Hygienists of Ontario, CDHO Advisory Menopause, 2010-01-10*

## 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)

**Menopause and the post-menopausal phase**

## 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 women during menopause or the post-menopausal phase, 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.
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. Record keeping.

TARGET POPULATION

Middle Age (40 to 65 years)
Aged (65 to 79 years)
Aged 80 and over

Female

MAJOR OUTCOMES CONSIDERED

For women during menopause or the post-menopausal phase: 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

Nomenclature of menopause

Adapted from
- MenopauseCanada
- The North American Menopause Society
- Mayo Clinic

Menopause, a biological phase of changes in hormones associated with female characteristics and reproduction and of alterations of endocrine function, is
1. indicated by the end of menstruation, marking the end of a woman’s child-bearing years.
2. signalled by cessation of the periods, and increased secretion of follicle-stimulating hormone by way of a biological compensatory response to stimulate the ovary to ovulate.
3. often accompanied by symptoms of varying specificity.

Hormones involved in the biological changes, and related topics, include
1. Bone-mineral density (BMD), the density in the bones of minerals, such as calcium, that determine the strength of the bones, which is tested using special X-ray or computed tomography (CT) scan.
2. Corpus luteum, cells that remain once the follicle has ovulated, which secrete the steroid hormones progesterone and estradiol.
3. Estrogens, a family of related hormones that stimulate the development and maintenance of female characteristics and reproduction; these
   a. are produced by the ovaries during the menstrual cycle
b. cause thickening of the lining of the uterus and generally produce a uterine environment suitable for fertilization, implantation, and nutrition of the early embryo
c. comprise three major hormones, estradiol, estrone, and estriol, of which estradiol is predominant.

4. Follicle, ovarian follicle, a cavity in the ovary that includes the developing egg (ovum), the cells surrounding the egg that produce the hormones needed to support pregnancy, and the fluid around the egg.

5. Follicle-stimulating hormone (FSH), produced by the pituitary gland, stimulates growth of the ovarian follicle which, as it grows, produces an increasing amount of estrogen that
   a. is released into the bloodstream
   b. inhibits the production and release of follicle-stimulating hormone.

6. Gonadotropins, comprise follicle-stimulating hormone and luteinizing hormone produced by the pituitary gland, and act on the ovaries.

7. Luteinizing hormone (LH), produced by the pituitary gland, along with follicle-stimulating hormone, that
   a. through a sharp rise in the blood level, called the LH surge, triggers the ovary to release an egg each month
   b. helps to increase the amount of estrogen produced by the follicle cells.

8. Menopause, the complete and permanent cessation of menstrual flow, amenorrhea, for one year, which occurs at a mean age of 51 years.

9. Ovum, an egg in the ovary.

10. Perimenopause, the phase prior to the menopause, when ovarian hormone production is declining and fluctuating.

11. Post-menopausal phase, the time after which a woman has experienced twelve consecutive months without a period.

12. Progesterone, produced by the corpus luteum, which
   a. stimulates thickening of the lining of the uterus
   b. prepares the uterus for the reception and development of the fertilized egg.

13. Progesterone, natural or synthetic substance that possesses some or all of the actions of progesterone.

Overview of menopause

Adapted from
- 34-Menopause-Symptoms
- HealthLinkBC
- Oral Hygiene is Especially Important Among Women
- The physiology, medical management and oral implications of menopause
- Women’s Oral Health Issues

Menopause
1. Is a process that
   a. starts some years before the end of menstruation with the perimenopause, and continues for several years after in the post-menopausal phase
   b. can be surgically induced by removal of the ovaries.
2. Is accompanied by some manifestations of estrogen deficiency in an estimated 85 percent of menopausal women though only 25 percent seek medical opinion; the most common manifestations are
   a. menstrual cycle changes induced by variations in hormonal levels, including
      i. heavy menstrual bleeding, with risk of
         1. anemia
         2. endometrial hyperplasia, when the inner lining of the uterus grows excessively
   ii. urinary tract problems
      1. infections
      2. increased urinary frequency
      3. stress-induced incontinence
   iii. dry, less supple and easily damaged skin
   iv. hot flashes, which
      1. affect 75 percent of menopausal women to some degree
      2. produce symptoms related to the central nervous system, such as
         a. headache
         b. sweating, and flushing and blotching of the skin
            i. arising from malfunction of the body-temperature regulation system
            ii. sometimes associated with emotional stress or certain foods
            iii. lasting from a few to as many as 30 minutes
   v. sleep changes, which
      1. are associated with night sweats that disturb sleep, causing fatigue and irritability
      2. usually improve two to four years after the last period
   vi. mood swings, manifested as
      1. anxiety
      2. depression
      3. difficulties with concentration
   vii. osteoporosis
   b. comorbidities and associated conditions.

Comorbidity and associated conditions

Comorbid conditions are those which co-exist with menopause or the post-menopausal phase but which are not believed to be caused by these; associated conditions are those that may have some link with menopause or the post-menopausal phase.

1. Comorbidities that are related to age include
   a. ovarian cysts
   b. uterine cancer
   c. uterine fibroid tumors
   d. uterine polyps.
2. Associated conditions include
   a. cardiovascular disease, which
      i. is manifested as coronary heart disease or stroke
ii. is the most common cause of death among postmenopausal women

iii. is associated with the rapid increase in arteriosclerosis that
   1. occurs during menopause and is attributed to decrease in estrogen level
   2. is revealed by
      a. increase in total cholesterol
      b. increase in low-density lipoprotein (LDL)
      c. decrease in high-density lipoprotein (HDL)

3. may be accompanied by factors which further increase the risk of cardiovascular disease, especially
   a. increased tendency to develop blood clots
   b. insulin resistance

b. osteoporosis, which
   i. is associated with low estrogen levels, among other factors
   ii. is characterized by
      1. low bone-mineral density
      2. loss of bone mass
      3. bone fragility and susceptibility to fractures
   iii. develops most rapidly in early menopause
   iv. commonly affects women over 50 years
   v. results in at least one fracture in 40 percent of postmenopausal women, which, in the hip, may lead to
      1. premature death
      2. loss of mobility
      3. reduction of independence
   vi. affects the mouth

c. Alzheimer’s disease, which
   i. brings impairment of memory, judgment and reasoning
   ii. results in changes in mood, behaviour and communication abilities
   iii. may affect women of all ages though mostly occurs over the age of 65 years
   iv. is of unknown cause
   v. lacks a cure, though it may have a connection with reduced estrogen levels in menopausal women
   vi. is unpredictable in its progress.

Oral health considerations

Menopause and the post-menopausal phase
1. May be associated with significant adverse changes in the mouth and surrounding tissues and linked to some extent with hormonal imbalance, especially estrogen deficiency; the adverse changes include
   a. decreased unstimulated and stimulated submandibular and sublingual salivary gland flow, apparently unrelated to medication effects, which may be
      i. a cause of increased dental caries
      ii. responsible for
         1. increased prevalence of impairment of sensation in the mouth
         2. changeless in taste
b. senile atrophic gingivitis, an abnormal paleness of the gingival tissues
c. menopausal gingivostomatitis, in which the gingivae are dry and shiny, bleed easily and range in color from abnormally pale to the characteristic redness of the skin caused by dilation and congestion of capillaries
d. exaggerated response to plaque seen in postmenopausal women with osteoporosis and concurrent periodontitis, as manifested by
   i. increased bleeding on probing
   ii. loss of dentoalveolar bone height
   iii. decreased bone-mineral density
      1. affecting the alveolar crestal and subcrestal bone
      2. raising risk of early loss of posterior teeth
      3. leading to
         a. possibly complete loss of natural teeth
         b. markedly resorbed residual alveolar ridges that are
            i. unsuitable for conventional dentures
            ii. inadequate as sites for dental implants
   e. osteoporosis revealed by oral X-rays may signal its presence in other bones.

2. May be associated with significant adverse changes in the mouth and surrounding tissues but without strong evidence of linkage with menopause-related hormonal imbalance; such changes include
   a. Sjögren’s syndrome, an autoimmune disease characterized by chronic inflammation of the salivary, lacrimal and other secreting glands, which leads to xerostomia, which in turn may be responsible for
      i. increased caries
      ii. periodontal disease
      iii. oral candidiasis
   b. pemphigus vulgaris, an autoimmune disease, which
      i. is characterized by mucosal and skin erosions and ulcers in the buccal mucosa, palate, lips, gingivae and esophagus
      ii. causes lesions that initially weep, and then erode and become painful ulcers
   c. burning mouth syndrome, which
      i. is of unknown cause
      ii. is characterized by a burning sensation in the anterior aspect of the tongue, the anterior hard palate or the lower lip mucosa.
      iii. may be accompanied by
         1. diminished taste sensation and severe menopausal symptoms
         2. oral candidiasis
   iv. on clinical and histological examination, the oral mucosa appears normal
   d. trigeminal neuralgia, which
      i. occurs commonly in postmenopausal women
      ii. is characterized by a unilateral electric shock–like pain in the middle and lower third of the face
      iii. may be mistakenly attributed to oral health problems.
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

Warnings
Individual medications may be subject to important warnings, which
1. change from time to time
2. may affect the appropriateness, efficacy or safety of the Procedures
3. are accessible via the links to the particular medication listed below or through the specialized organizations listed above
4. through the links, should be viewed by dental hygienists in the course of their familiarizing themselves about a medication or combination of medications identified in the patient/client’s medical and medications history.

Medications
Types of medications used to relieve symptoms associated with the menopause or the post-menopausal phase, or to prevent the chronic diseases, such as osteoporosis, believed associated with estrogen deficiency; such medications include
1. Hormone Replacement Therapy (Activella®, FemHrt®, Ortho-Prefest®, Premphase®, Prempro®)
   a. is used to treat some symptoms of menopause
   b. comprises
      i. estrogen which, when used for hormone replacement therapy, is the subject of an important warning about
         1. increased risks of
            a. endometrial cancer
            b. breast cancer
            c. stroke
            d. blood clots in the lungs or legs
         2. the need to avoid its use for the prevention of
a. heart attack because it has no heart-protective benefit to healthy postmenopausal women or to those with heart disease

b. dementia because there is no evidence of a positive effect that estrogen replacement therapy can maintain cognitive function for a longer period of time (> five months) in women with Alzheimer’s disease

ii. progestin, added to estrogen to reduce the risk of uterine cancer

c. does not necessarily prevent or help women with oral symptoms (Abstract; the full article is available on payment).

2. Treatment of osteoporosis in post-menopausal women

a. Selective estrogen receptor modulators
   i. tamoxifen (Nolvadex®), which
      1. has an estrogen-like effect on bone cells; appears to reduce the risk of fractures, especially in women over age 50
      2. may cause cancer of the uterus, strokes, and blood clots in the lungs
   ii. raloxifene (Evista®)
      1. mimics estrogen’s beneficial effects on bone density in postmenopausal women
      2. may increase the risk of blood clot in the legs or lungs.

b. Other medications used in the treatment of osteoporosis
   i. bisphosphonates
      1. inhibit bone breakdown, preserve bone mass and increase bone density in the spine and hip
      2. may reduce the risk of hip and spine fractures by about 50 percent
      3. include
         a. alendronate (Fosamax®)
         b. risedronate (Actonel®)
   ii. calcitonin (Miacalcin®), a hormone produced by the thyroid, that
      1. reduces bone resorption
      2. may slow bone loss
      3. may also prevent spine fractures, but apparently not hip fractures
      4. is usually used to treat persons with osteoporosis who are at high risk of fracture and cannot take bisphosphonates.
   iii. teriparatide (Forteo®) is
      1. is a manufactured form of the naturally occurring hormone parathyroid
      2. helps in the formation of new bone
      3. increases bone strength.

**Side effects of medications**

See the links to the individual medications above.

**THE MEDICAL AND MEDICATIONS HISTORY**

The medical and medications history-taking should

1. Focus on screening the patient/client prior to treatment decision relative to
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

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

In an otherwise healthy patient/client, there is no contraindication to the Procedures. But the Procedures may be postponed pending medical advice if the patient/client has

1. Recently changed medications, under medical advice or otherwise.
2. Recently experienced changes in 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 undergoing menopause or the post-menopausal phase, 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

As appropriate, discuss

1. The importance of oral health as estrogen levels fall as part of menopause and the post-menopausal phase.
2. The need for regular oral health examinations and preventive oral healthcare relative to
   a. bone loss from osteoporosis and the subsequent risk of tooth loss
   b. bleeding or inflamed gums and gum disease.
3. Home oral hygiene including information about choice of toothpaste, tooth-brushing devices, dental flossing, mouth rinses and saliva control.
4. Medication side effects such as dry mouth, and recommend treatment.
5. Scheduling and duration of appointments for patients/clients with chronic or debilitating conditions comorbid to or associated with menopause or the post-menopausal phase.
6. Comfort level while reclining, and stress and anxiety related to the Procedures.
7. Mouth ulcers and other conditions of the mouth relating to menopause, comorbidities, medications or diet.
8. Pain management.
### Benefits/Harms of Implementing the Recommendations

#### Potential Benefits

1. Promotion of health through oral hygiene during and after menopause.
2. Reduction of the adverse effects, such as those pertaining to the biological decline in estrogen production, by
   a. promoting awareness of oral health
   b. generally increasing the comfort level of persons in the course of dental hygiene interventions
   c. using appropriate techniques of communication
   d. providing advice on scheduling and duration of appointments.
3. Reduction of risk of oral health needs being unmet.

#### Potential Harms

1. Failing to detect oral indications of undiagnosed osteoporosis requiring medical advice
2. Performing the Procedures at an inappropriate time, such as
   a. in the presence of comorbidities or associated conditions for which prior medical advice is required
   b. in the presence of acute oral infection without prior medical advice.
3. Disturbing the normal dietary and medications routine of a woman undergoing menopause or the post-menopausal phase.
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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#### Advisory Developer(s)

College of Dental Hygienists of Ontario, regulatory body
Greyhead Associates, medical information service specialists

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College of Dental Hygienists of Ontario

#### Advisory Committee

College of Dental Hygienists of Ontario, Practice Advisors
### COMPOSITION OF GROUP THAT AUTHORED THE ADVISORY

<table>
<thead>
<tr>
<th>Dr Gordon Atherley</th>
</tr>
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<tbody>
<tr>
<td>O StJ, MB ChB, DIH, MD, MFCM (Royal College of Physicians, UK), FFOM (Royal College of Physicians, UK), FACOM (American College of Occupational Medicine), LLD (hc), FRSA</td>
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<th>Lisa Taylor</th>
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<td>RDH, BA, MEd</td>
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