## 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 during pregnancy.

### ADVISORY STATUS

Cite as

*College of Dental Hygienists of Ontario, CDHO Advisory Pregnancy, 2010-01-17*

### 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)

**Pregnancy**

### 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 during pregnancy, 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

Adolescent (13 to 18 years)
Adult (19 to 44 years)
Middle Age (45 to 64 years)
Female
Parents or guardians of single teenagers during pregnancy.

MAJOR OUTCOMES CONSIDERED

During pregnancy: 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 pregnancy

1. Corpus luteum, cells that remain once the follicle has ovulated, which secrete the steroid hormones progesterone and estradiol.
2. Eclampsia, convulsions with or without coma during pregnancy, unrelated to brain conditions.
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. Gestational diabetes, a type of diabetes unique to pregnancy, which occurs in women who have no history of diabetes prior to pregnancy.

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

8. High-risk pregnancy, where one or more conditions puts the mother, the developing fetus, or both at above-normal risk for complications during or after the pregnancy and birth, and which requires closer monitoring than a normal pregnancy.

9. **HIV/AIDS**, **human immunodeficiency virus**, the cause of **acquired immunodeficiency syndrome**, an infection that kills or damages the immune system, and progressively destroys the body's capacity to fight infections and certain cancers; the term **AIDS** applies to the most advanced stages of the HIV infection.

10. 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**.

11. Oral herpes, also known as cold sores, caused by the herpes simplex virus, which also causes genital herpes

12. Ovum, an egg in the ovary.

13. Postural hypotension, also termed orthostatic hypotension, when standing for three minutes results in a rapid reduction of systolic blood pressure of at least 20 mmHg or of diastolic blood pressure of at least 10 mmHg.

14. Preeclampsia, a serious and rapidly progressive condition of unknown cause which
   a. is closely related to
      i. pregnancy-induced hypertension
      ii. toxemia of pregnancy
      iii. HELLP syndrome, seen typically in the more severe cases of preeclampsia or **eclampsia**, a combination of
         1. hemolysis, destruction of red cells, (H)
         2. elevated liver enzymes (EL)
         3. low platelet count (LP)
   b. is unique to pregnancy
   c. if untreated may
      i. be fatal for the mother and or the baby
      ii. lead to long-term health problems for the mother and or the baby
   d. is an obstetrical emergency
   e. affects as many as 5 to 8 percent of pregnancies
   f. develops
      i. typically in the late second or third trimester of pregnancy
      ii. sometimes before week 20, that is, early in the second trimester of pregnancy
      iii. sometimes in the postpartum period
   g. is marked by
      i. high blood pressure
      ii. sudden weight gain
      iii. swelling of the ankles
      iv. headache
      v. vision changes
vi. protein in the urine
h. may also be asymptomatic or nearly so
i. is associated with
   i. reduced blood flow to the placenta, which risks death of the fetus
   ii. risk to the mother of
      1. eclampsia
      2. kidney failure
      3. liver failure
      4. death

15. Preterm labour, begins before week 37 of pregnancy;
   a. if premature birth occurs, the baby may not be able to survive unaided because
      it is not fully grown
   b. specialist care may involve steps to try to stop preterm labour.

16. 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.

17. Progestin, natural or synthetic substance that possesses some or all of the actions of
    progestrone.

18. Supine hypotensive syndrome
   a. occurs chiefly in the third trimester of pregnancy
   b. results from the increased size of the uterus, which causes pressure on the
      vena cava and aorta, reducing blood flow to the heart.

19. Trimester, pregnancy is partitioned into three trimesters, reflective of their distinctive
    biological patterns
   a. first trimester, weeks 1–12
   b. second trimester, weeks 13–27
   c. third trimester, weeks 28–42

Overview of pregnancy

Adapted from
- Is Periodontal Disease a Risk Factor for Onset of Preeclampsia and Fetal Outcome?
- MedlinePlus
- National Institute of Child Health and Human Development
- Oral Herpes Simplex Virus Infection in Pregnancy
- Preeclampsia Foundation
- Risk Factors Present Before Pregnancy
- Risk Factors That Develop During Pregnancy
- Sidelines

1. Systemic changes associated with pregnancy, with particular relevance to oral
   healthcare include
   a. changes involving the cardiovascular system, such as susceptibility to
      i. postural hypotension
      ii. supine hypotensive syndrome, which
         1. is characterized by
            a. light-headedness
            b. weakness
c. sweating
d. restlessness
e. tinnitus
f. pallor
g. decrease in blood pressure

2. may lead to fainting, unconsciousness or even convulsions

3. is heralded by warning symptoms that the woman may recognize soon enough to warn those around her.

b. upper respiratory tract
   i. nasal congestion
   ii. epistaxis

c. gastrointestinal system
   i. increased intragastric pressure
   ii. gastric acid reflux

d. oral cavity

2. high-risk pregnancy associated with
   a. preeclampsia and eclampsia
      i. both of which are leading causes of maternal death in childbirth
      ii. which display progression from preeclampsia to eclampsia in about 1 in 200 pregnancies, which can be fatal to mother and fetus
      iii. preeclampsia without eclampsia
         1. is more common in racial groups especially susceptible to high blood pressure, such as African Canadians and African Americans, and First-Nation North Americans
         2. reflects risk factors, such as
            a. current pregnancy
               i. at age < 20 or > 40 years
               ii. first pregnancy
               iii. multiple fetuses
            b. history
               i. preeclampsia in previous pregnancies
               ii. family history of preeclampsia
            c. pre-existing medical conditions
               i. diabetes
               ii. hypertension
               iii. kidney disease
               iv. overweight
         3. recognition and identification of preeclampsia
            a. mild preeclampsia
               i. blood pressure at or above 140/90 mmHg
               ii. swelling of
                  1. hands
                  2. ankles
                  3. feet
               iii. protein in the urine
            b. severe preeclampsia
               i. blood pressure at or above 150/110 mmHg
               ii. severe swelling
iii. abdominal pain
iv. vision problems

b. **gestational diabetes**, is compatible with healthy pregnancies and normal babies given close adherence by the mother to a specialized treatment plan as part of prenatal care
c. virus infections, such as  
   i. **HIV**, which  
      1. can be passed by infected mothers to their babies  
         a. during pregnancy  
         b. while giving birth  
         c. through breastfeeding  
      2. may be combated with effective interventions  
   ii. **oral herpes**, which  
      1. is uncommon  
      2. manifests as  
         a. acute herpetic gingivostomatitis, characterized by  
            i. ulcerations on any oral mucosal surface  
            ii. enlarged lymph glands in the neck or under the jaw  
            iii. systemic symptoms, such as fever and loss of appetite  
         b. herpes labialis  
   iii. may be facilitated by the immunosuppression that develops during pregnancy  
   iv. seems not to be associated with adverse effects on the fetus or pregnancy
d. **preterm labour**, which  
   i. is unpredictable  
   ii. in developing countries, together with low birth-weight babies and **preeclampsia**, may be associated with periodontal disease
e. medical conditions that existed prior to pregnancy may worsen during pregnancy and require appropriate prenatal care; these include  
   i. hypertension  
   ii. diabetes  
   iii. cardiovascular, respiratory, or kidney conditions  
   iv. see also  
      1. Risk Factors Present Before Pregnancy  
      2. Risk Factors That Develop During Pregnancy

**Comorbidity**

Comorbid or pre-existing conditions are those which co-exist with but which are not believed to be caused by pregnancy; associated conditions are those that may have some link with pregnancy.

**Oral health considerations**

Adapted from  
- An Update on Local Anesthetics in Dentistry (2002)  
- Dental Treatments Don't Stop Preterm Births  
- Looking at the Periodontal-Systemic Disease Connection
1. Women should
   a. not be denied oral healthcare because they are pregnant
   b. prioritize oral healthcare because maintaining oral health throughout pregnancy
      is an important, practical component of prenatal care during
      i. normal pregnancy
      ii. pregnancy considered high-risk, but only in close coordination with
          primary care providers and specialists
   c. receive oral healthcare integrated with routine prenatal care by inclusion of
      blood pressure measurements performed by dental hygienists, at appropriate
      times, relative to the
      i. role of blood pressure in postural hypotension and supine hypotensive
         syndrome
      ii. importance of recognition, early detection and prompt treatment of
          preeclampsia.

2. In the provision of oral healthcare during pregnancy certain social and health factors
   should be considered and addressed objectively; these include
   a. whether women do not receive or even avoid oral healthcare during pregnancy
      because
      i. of fear of causing harm to the unborn child: comprehensive studies have
         produced no unequivocal evidence of such harm arising from routine oral
         healthcare
      ii. of a belief that deterioration of oral health is a normal accompaniment of
         pregnancy: the biological changes in hormones, such as those associated
         with estrogen levels, are frequently associated with gingivitis, these
         associations strengthen not weaken the case for oral healthcare during
         pregnancy
      iii. some obstetricians and other healthcare providers may not routinely
          recommend oral healthcare
          1. because possible influences may include the failure by early 2010 to
             unequivocally demonstrate the value of treating periodontal
             disease in preventing pre-term births
          2. though authoritative opinion holds that maintaining oral health
             during pregnancy is important
             a. as part of the protection of health during pregnancy
             b. for the treatment of periodontal disease to avoid tooth loss
                and to maintain oral comfort and function
iv. oral healthcare providers may be hesitant in providing oral healthcare: authoritative opinion holds that risk to fetus is not increased by
   1. treatment of periodontitis
   2. local anesthetics
   3. amalgams
   4. oral imaging with x-rays, provided that the x-ray examinations during pregnancy are
      a. conducted with care to avoid exposure of the fetus
      b. limited to a prudent number
      c. subject to precautions that include
         i. lead apron for the patient/client’s lower abdomen
         ii. proper collimation of the beam
         iii. use of high-speed film

b. the association between poor oral health in pregnancy and
   i. gingivitis, which
      1. is experienced by about half of pregnant women from the start of the first trimester
      2. is associated with biological increase in estrogen and progesterone particularly in the third trimester
      3. may progress to periodontitis, leading to
         a. tooth loss
         b. adverse effects on quality of life
   ii. viral infections
      1. such as
         a. HIV/AIDS
         b. oral herpes
      2. require
         a. prompt recognition and referral
         b. strict attention to infection control

c. changes in oral healthcare required for appropriate adaptation to the biological, pregnancy-related changes in blood circulation; these include
   i. postural hypotension, which requires slow movements in repositioning the patient/client from reclining to upright
   ii. supine hypotensive syndrome which, during the third trimester, should be
      1. avoided by keeping the patient/client in a semi-reclined position
      2. treated by gently turning woman on her left side

d. timing of oral healthcare during pregnancy for
   i. all categories of oral healthcare: the postpartum period is considered the safest time
   ii. high-risk pregnancy: consultation is normally required with the primary care provider prior to first initiation of the Procedures
   iii. time of day to schedule an appointment for a pregnant patient/client: when she feels most comfortable is the best guide to scheduling
   iv. routine appointments: should be scheduled in each trimester of normal pregnancy
   v. elective, non-urgent treatment: the second trimester is preferred because, in the third trimester, especially in its later stages, the supine position may cause circulatory problems
vi. emergency treatment, such as restorations, endodontic treatment and extractions: can be provided at any time during pregnancy as long as adequate precautions are taken, including prior consultation with the primary care provider.

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

Types of medications

General information resources about medications and pregnancy
   - Medications During Pregnancy
   - Merck
   - MOTHERISK
   - WomensHealth.gov

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

1. General observations about medications in pregnancy include
   a. keeping medications use to a minimum during pregnancy
   b. recognizing that most medications used in oral healthcare pose no threat to the fetus
   c. relief of pain arising in the mouth
      i. in normal pregnancy
         1. with minor pain, should favour over-the-counter acetaminophen
         2. more severe pain, prescription acetaminophen with codeine may be given in minimal doses
      ii. in high-risk pregnancy, medical advice is required.

2. Contraindications for specific medications that must not be administered during pregnancy include
   a. tetracycline
   b. aspirin
   c. nonsteroidal anti-inflammatory drugs, in the third trimester.

3. For medical conditions that co-exist with or are complications of pregnancy, prescription medications may be required; of these, medications known to have adverse effects on pregnancy or the fetus commonly belong to particular classes such as the following.

   Antianxiety drugs        Mood-stabilizing drugs
   Antibiotics              Oral antihyperglycemic drugs
   Anticoagulants           Sex hormones
   Anticonvulsants          Skin treatments
   Antihypertensives        Thyroid drugs
   Chemotherapy drugs       Vaccines (live virus)

4. Substances of abuse are associated with adverse effects on pregnancy or the fetus; in particular
   a. alcohol, which is the cause of fetal alcohol spectrum disorder ([CDHO Advisory](#))
   b. cocaine, increases the risk of
      i. premature detachment of the placenta
      ii. premature birth
      iii. stillbirth
      iv. fetal growth impairment
   c. nicotine, from cigarette smoking, increases the risk of
      i. stillbirth
      ii. preterm labour
      iii. premature detachment of the placenta
      iv. premature rupture of membranes
      v. fetal growth impairment.

5. To grade medications and their known effects on pregnancy the FDA produced a classification system shown in adapted form in the following table.
<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>In human studies, pregnant women used the medicine and their babies did not have any problems related to using the medicine.</td>
</tr>
</tbody>
</table>
| B        | In humans, there are no good studies. But in animal studies, pregnant animals received the medicine, and the babies did not show any problems related to the medicine.  
  Or  
In animal studies, pregnant animals received the medicine, and some babies had problems. But in human studies, pregnant women used the medicine and their babies did not have any problems related to using the medicine. |
| C        | In humans, there are no good studies. In animals, pregnant animals treated with the medicine had some babies with problems. However, sometimes the medicine may still help the human mothers and babies more than it might harm.  
  Or  
No animal studies have been done, and there are no good studies in pregnant women. |
| D        | Studies in humans and other reports show that when pregnant women use the medicine, some babies are born with problems related to the medicine. However, in some serious situations, the medicine may still help the mother and the baby more than it might harm. |
| X        | Studies or reports in humans or animals show that mothers using the medicine during pregnancy may have babies with problems related to the medicine. There are no situations where the medicine can help the mother or baby enough to make the risk of problems worth it. These medicines should never be used by pregnant women. |

**Side effects of medications**

From the medication history, the patient/client’s medication should be identified. The side effects should be checked in [US National Library of Medicine and the National Institutes of Health Medline Plus Drug Information](https://medlineplus.gov/druginfo/medsindex.html).

**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  
   a. troublesome symptoms such as  
      i. fatigue  
      ii. gagging  
      iii. nausea  
      iv. vomiting  
   b. medications  
   c. high-risk pregnancy  
   d. complications of pregnancy  
   e. co-existing medical conditions.

2. Explore the need for advice from the appropriate primary care provider, by inquiring about  
   a. a history of the present or previous pregnancy indicative of high-risk pregnancy  
   b. the patient/client’s understanding and acceptance of the need for oral healthcare  
   c. symptoms indicative of co-existing medical conditions and complications of pregnancy
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. how the patient/client’s feels at this moment  
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

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

During a normal pregnancy there is no contraindication to the Procedures.

But the Procedures may be postponed pending medical advice if the patient/client has  
1. A history of [high-risk pregnancy](#), or she is aware that her current pregnancy is considered high risk, or she is receiving specialized prenatal care.  
2. Symptoms or signs of co-existing medical conditions, a complication of pregnancy, or of high-risk pregnancy.  
3. Recently changed medications, under medical advice or otherwise.  
4. Concerns about oral healthcare during her pregnancy.
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 during pregnancy, 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. Coping with morning sickness, which may require
   a. change of toothpaste if taste deters tooth-brushing
   b. rinsing of the mouth with water or mouth rinse if vomiting is frequent.
2. The importance of a good diet in the maintenance of oral health during pregnancy.
3. The need for regular oral health examinations and preventive oral healthcare.
4. Home oral hygiene including information about choice of toothpaste, tooth-brushing devices, dental flossing, mouth rinses, saliva control and smoking cessation.
5. Scheduling and duration of appointments.
6. Comfort level while reclining, and stress and anxiety related to the Procedures, especially during the second and third trimesters.
7. Mouth ulcers and other conditions of the mouth relating to pregnancy, co-existing conditions, complications, medications or diet.
8. Pain management.

BENEFITS/HARMS OF IMPLEMENTING THE RECOMMENDATIONS

POTENTIAL BENEFITS

1. Promotion of health through integration of oral healthcare with prenatal care during pregnancy.
2. Reduction of risks, such as
   a. undetected preeclampsia
   b. postural hypotension
   c. supine hypotensive syndrome
3. Generally increasing the comfort level during pregnancy in the course of the Procedure by
a. attention to the patient/client’s posture during oral healthcare
b. use of appropriate techniques of communication
c. provision of advice on scheduling and duration of appointments.

4. Reduction of risk of oral health needs being unmet.

POTENTIAL HARMs

1. Causing or increasing risk in a high-risk pregnancy by failing to obtain appropriate medical advice.
2. Performing the Procedures at an inappropriate time, such as
   a. when the patient/client’s pregnancy is accompanied by complications or co-existing 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 during pregnancy.
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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