

# PERINATAL AND INFANT ORAL HEALTH CARE

# LECTURE OUTLINE

- Introduction
- Perinatal oral health care
- Infant oral health care
- Discussion

# INTRODUCTION

**Perinatal period:** the period immediately before and after birth.



According to the WHO, the perinatal period commences at **22 completed weeks (154 days)** of gestation and ends **7 completed days** after birth.



**Infant:** a young baby, from birth to 12 months of age.

# INTRODUCTION

## ➤ Why is perinatal and infant oral health care important?

- Perinatal and maternal health are closely linked.
- Perinatal and infant health are closely linked.
- ECC begins soon after tooth eruption and progresses rapidly.
- ECC is **32 times** more likely to occur in infants who are of low socioeconomic status, who consume a diet high in sugar, and whose mothers have a low education level.

# INTRODUCTION

- All expectant mothers should receive appropriate oral health care and education.
- Some infants will be under higher risk and need to be identified through caries risk assessment.



# INTRODUCTION

## ➤ Risk factors:

- High levels of maternal dental caries.
- Poor maternal oral health knowledge.
- Poor maternal oral hygiene and/or dietary practices.
- Low socio-economic status/ low maternal education .

# INTRODUCTION

- Health care professionals (doctors, nurses, etc.) are more likely to see expectant mothers and their infants than are dentists.
- Therefore, it is essential that they are involved in identifying and referring high-risk patients.
- Recent studies showed that a majority of those and even general dentists lacked knowledge on the appropriate approach to perinatal and infant oral health care.



# **PERINATAL ORAL HEALTH CARE**

# MATERNAL ORAL HEALTH

➤ During pregnancy, women are more likely to develop oral health conditions, such as:

- Dental caries.
- Periodontal disease.
- Pyogenic granuloma.



# UNTREATED DENTAL DISEASE IN PREGNANCY

- May harm the patient (Abscesses and cellulitis, Periodontal Infection, Chronic infections).



# UNTREATED DENTAL DISEASE IN PREGNANCY

- May be associated with pre-term and low birth weight infants.

- **Why?**

- Periodontal disease, caused by gram negative bacteria, has received particular attention.
- Circulating periodontal bacteria induce activation of maternal immune responses leading to cytokine production, release of prostaglandins, and leading to uterine contractions.

# UNTREATED DENTAL DISEASE IN PREGNANCY

- Periodontal bacteria & toxins cross the placental barrier colonize feto-placental unit, trigger inflammatory response and preterm birth.
- *Studies found porphyromonas gingivalis in amniotic fluid.*

# UNTREATED DENTAL DISEASE IN PREGNANCY

- Linked to child's oral health.
- Maternal transmission of *strep mutans* during normal activities (feeding etc.)
- DNA analysis shows same sequence in maternal and infant *strep mutans*



# PERINATAL ORAL HEALTH CARE

The perinatal period is an opportune time to educate and perform dental treatment on expectant mothers.

Pregnancy care visits provide a ‘teachable moment’ for physicians, dentists, and nurses to educate women.

- Teachable moment: “Naturally occurring health events thought to motivate individuals to spontaneously adopt risk-reducing health behaviours”.

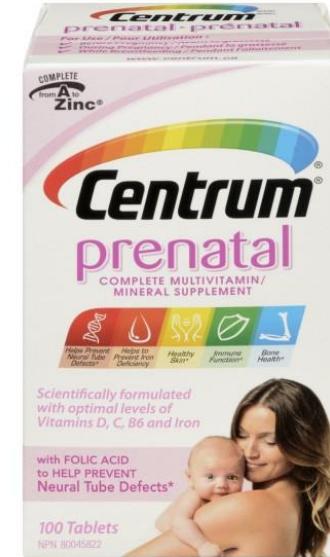
# WHAT DO WE NEED TO DO?

## 1. Dietary advice:

➤ Advise adequate quality and quantity of nutrients for the mother-to-be and the unborn child:

Take prenatal vitamins, including folate.

Eat foods high in protein, Ca, P and Vits A,C and D.



# WHAT DO WE NEED TO DO?

➤ Reduce the consumption of cariogenic foods

Limit foods with sugars and simple carbs.

Limit drinking juice, soda (including diet soda) between meals.



# WHAT DO WE NEED TO DO?

## 2. Oral hygiene instructions:

Tooth brushing instructions (frequency, technique, etc.).

1450 PPM fluoridated toothpaste.

F mouthwash (0.05 NaF/daily; 0.2 NaF/weekly)

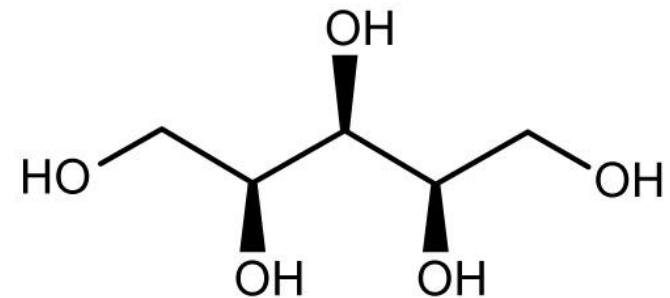


# WHAT DO WE NEED TO DO?

## 3. Xylitol chewing gum:

Xylitol is a five-carbon sugar alcohol ( $\text{CH}_2\text{OH}(\text{CHOH})_3\text{CH}_2\text{OH}$ ).

Not readily metabolized by oral bacteria, and thus considered non-cariogenic.



# WHAT DO WE NEED TO DO?

The chewing process enhances the caries inhibitory effect, which may be a significant confounding factor for the efficacy of xylitol gum.

- Some research suggests that expectant mothers' chewing of xylitol gum four times a day may decrease the rate of dental caries in their children.



# WHAT DO WE NEED TO DO?

➤ **However,**

- A recent Cochrane review concluded that there isn't sufficient evidence behind the practice (Riley et al., 2015).
- Studies used large doses and high frequencies of xylitol that may be unrealistic.
- Xylitol is known to cause possible side effects such as bloating, wind and diarrhoea.

# WHAT DO WE NEED TO DO?

## 4. Provision of dental treatment.

Comprehensive oral examination, dental prophylaxis, and treatment are needed during pregnancy.

Dental treatment during pregnancy, including dental radiographs with proper shielding, local anaesthetic, and amalgam restorations, is safe in all trimesters and optimal in the 2<sup>nd</sup> trimester.



Due to possible patient discomfort in dental positioning, elective treatment in the 3<sup>rd</sup> trimester sometimes may be deferred until after delivery.

# WHAT DO WE NEED TO DO?

## **5. Anticipatory guidance on infant oral health care:**

- Diet (Breast-feeding, Bottle-feeding)
- Oral hygiene.
- Fluoride.
- Establishment of a dental home.



# **INFANT ORAL HEALTH**

# INFANT ORAL HEALTH

- ❑ Caries in primary teeth can affect children's growth, result in significant pain and potentially life-threatening infection, and diminish overall quality of life.



# INFANT ORAL HEALTH

- **Risk assessment** allows for identification of parent-infant groups who are at risk for ECC and would benefit from early preventive intervention.
- However, caries risk assessment can fail to identify all infants at risk for developing ECC therefore, the early establishment of the **dental home** is necessary.

# WHAT IS THE DENTAL HOME?

*“The ongoing relationship between the dentist and the patient, inclusive of all aspects of oral health care delivered in a comprehensive, continuously accessible, coordinated, and family-centered way.”*

- The dental home should be established **no later than 12 months of age** and includes referral to dental specialists when appropriate.

# WHAT IS THE DENTAL HOME?

The initial visit should include:

- Thorough medical (infant) and dental (parent and infant) histories and a thorough oral examination.
- Age-appropriate tooth brushing demonstration, and prophylaxis and fluoride varnish treatment if indicated.
- Assessment of the infant's risk of developing caries and determining a prevention plan and interval for periodic re-evaluation.

# WHAT IS THE DENTAL HOME?

- Referral of the infant to appropriate health professionals if any specialized intervention is necessary.
- Provision of anticipatory guidance regarding:  
Dental and oral development, fluoride, non-nutritive sucking habits, teething, injury prevention, oral hygiene instruction, and the effects of diet on the dentition.

# WHAT DO WE NEED TO DO?

## 1. Dietary advice:

### ➤ saliva-sharing behaviours:

Avoid sharing spoons and other utensils, sharing cups, cleaning a dropped pacifier or toy with the parents mouth to prevent vertical and horizontal transmission of MS.

# WHAT DO WE NEED TO DO?

## ➤ **Breastfeeding:**

- Provides general health, nutritional, developmental, psychological, social, economic, and environmental advantages while significantly decreasing risk for a large number of acute and chronic diseases.
- Human breast milk is uniquely superior in providing the best possible nutrition to infants and has not been epidemiologically associated with caries.

# WHAT DO WE NEED TO DO?

However,

- Breast milk has a higher carbohydrate content and lower calcium, phosphorus, and protein levels than bovine milk, thus making it potentially more cariogenic.
  - Frequent night time bottle feeding with milk and ad libitum breast-feeding are associated with, but not consistently implicated in, ECC.
  - Breastfeeding greater than seven times daily after 12 months of age is associated with increased risk for ECC.
- Avoid Ad libitum breast-feeding after the first primary tooth begins to erupt and other dietary carbohydrates are introduced.**

# WHAT DO WE NEED TO DO?

## **Bottle-feeding:**

- Night time bottle feeding with juice, repeated use of a sippy or no-spill cup, and frequent in between meal consumption of sugar-containing snacks or drinks (e.g. juice, formula, soda) increase the risk of caries.
- High-sugar dietary practices appear to be established early, by 12 months of age, and are maintained throughout early childhood.

# WHAT DO WE NEED TO DO?

- Avoid frequent consumption of Sugar-sweetened beverages (e.g., juices, soft drinks, sports drinks, sweetened tea) in a baby bottle or no-spill training cup.**
  
- Stop baby bottle use after 12-18 months.**

# WHAT DO WE NEED TO DO?

## 2. Oral hygiene instructions:

Oral hygiene measures should be implemented no later than the time of eruption of the first primary tooth.

Tooth-brushing should be performed for children by a parent twice daily, using a soft toothbrush of age-appropriate size and the correct amount of fluoridated toothpaste.

- Small toothbrush
- Smear of toothpaste
- 1000 ppm F for low or moderate risk, 1450 ppm for high risk

# WHAT DO WE NEED TO DO?

## 3- Fluoride:

- Decisions concerning the administration of fluoride are based on the unique needs of each patient.
- Balance between the benefits and the risk of fluorosis.

# WHAT DO WE NEED TO DO?

- Fluoridated toothpaste.
- Professionally-applied topical fluoride, such as fluoride varnish.
- Fluoride supplements for children at caries risk who drink fluoride deficient water (less than 0.6 ppm) after determining all other dietary sources of fluoride exposure.



# WHAT DO WE NEED TO DO?

## 4- Advice on teething:

- Teething can lead to intermittent localized discomfort in the area of erupting primary teeth, irritability, and excessive salivation; however, many children have no apparent difficulties.
- Treatment of symptoms includes oral analgesics and chilled rings for the child to gum.
- Use of topical anaesthetics, including over-the-counter teething gels, to relieve discomfort are discouraged due to potential toxicity of these products in infants.



# WHAT DO WE NEED TO DO?

## 5- Injury prevention advice:

- Provide age-appropriate injury prevention counselling for oro-facial trauma.
- Initially, discussions would include play objects, pacifiers, car seats, and electric cords.



# WHAT DO WE NEED TO DO?

## 6- Non-nutritive habits advice:

- Non-nutritive oral habits (eg, digit or pacifier sucking, bruxism, abnormal tongue thrust) may apply forces to teeth and dento-alveolar structures.
- It is important to discuss the need for early sucking and the need to wean infants from these habits before malocclusion or skeletal dysplasias occur.



# DISCUSSION

An expectant 28-year-old mother attends your clinic for her routine dental visit. She asks you to give her advice on taking care of her child's teeth in order to prevent tooth decay.