



# THE EPIDEMIOLOGY OF ORAL DISEASES IN PREGNANT WOMEN

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# OUTLINE

Introduction

Linking oral health with pregnancy

Evidence on prenatal oral care

Implications for obstetric practice - integrated care?

Conclusion

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# INTRODUCTION



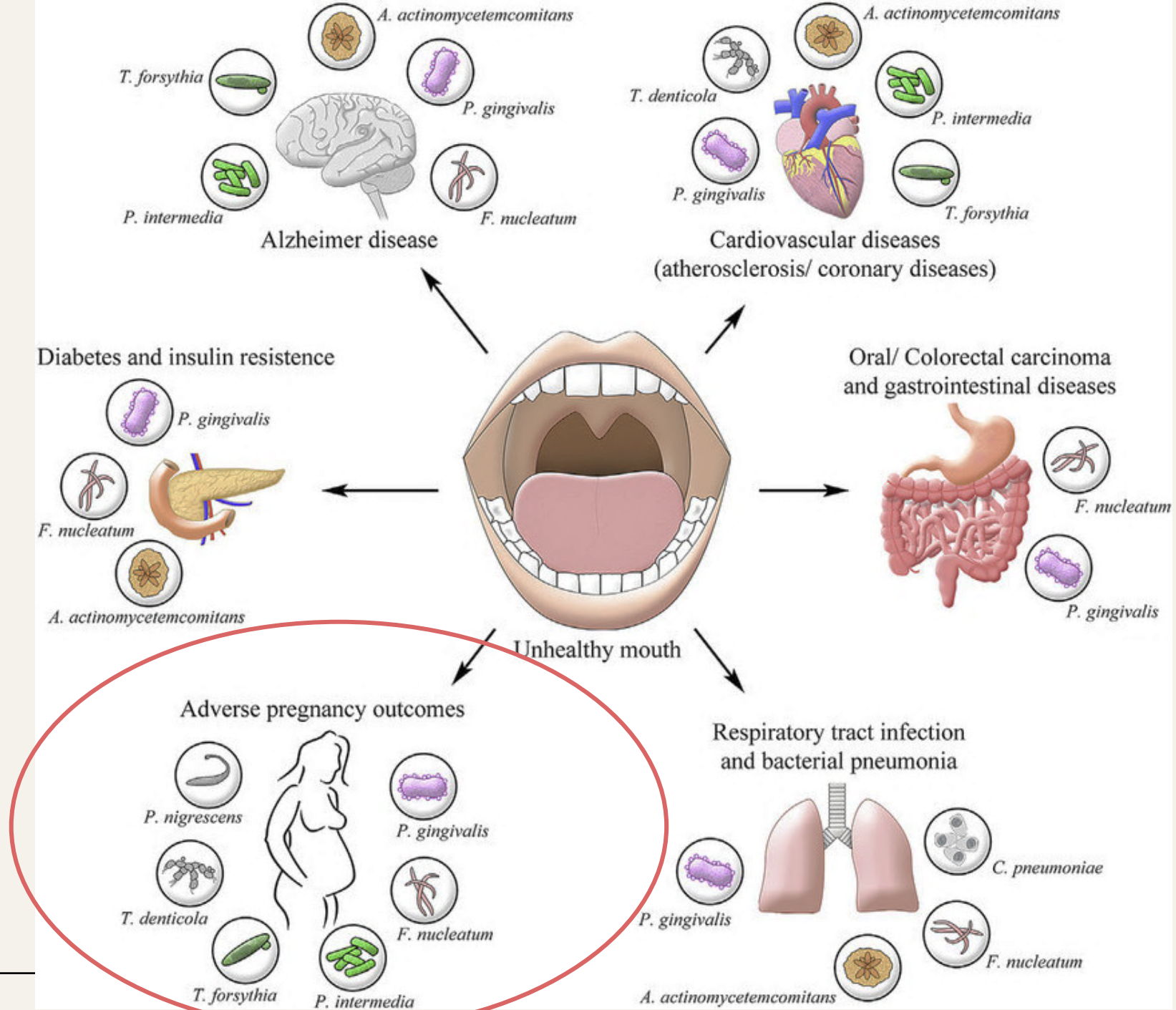
The most common oral diseases include  
Dental caries  
Periodontal disease  
Oral cancer

The precursor of two of the commonest oral diseases is **dental plaque** – a biofilm

Process of interest	Key organisms
<b>Plaque formation</b>	Primary colonizers (mostly Gram positive): <i>Streptococcus</i> <i>Actinomyces</i> <i>Haemophilus</i> <i>Neisseria</i> <i>Veillonella</i>  Secondary colonizers (mostly Gram negative): Various species. Examples: <i>Porphyromonas</i> and <i>Fusobacterium</i>
<b>Formation of Caries</b>	<i>Streptococcus mutans</i> <i>Streptococcus sanguinis</i> <i>Lactobacilli</i>
<b>Periodontitis</b>	<i>Porphyromonas</i> <i>Actinobacillus</i> <i>Treponema</i> <i>Selenomonas</i> <i>Tannerella</i>

500-700 species of bacteria, viruses, fungi, and protozoa, a good number of which are significantly virulent and many of which have not been cultivated

# ORAL ORGANISMS IMPLICATED IN SYSTEMIC DISEASE



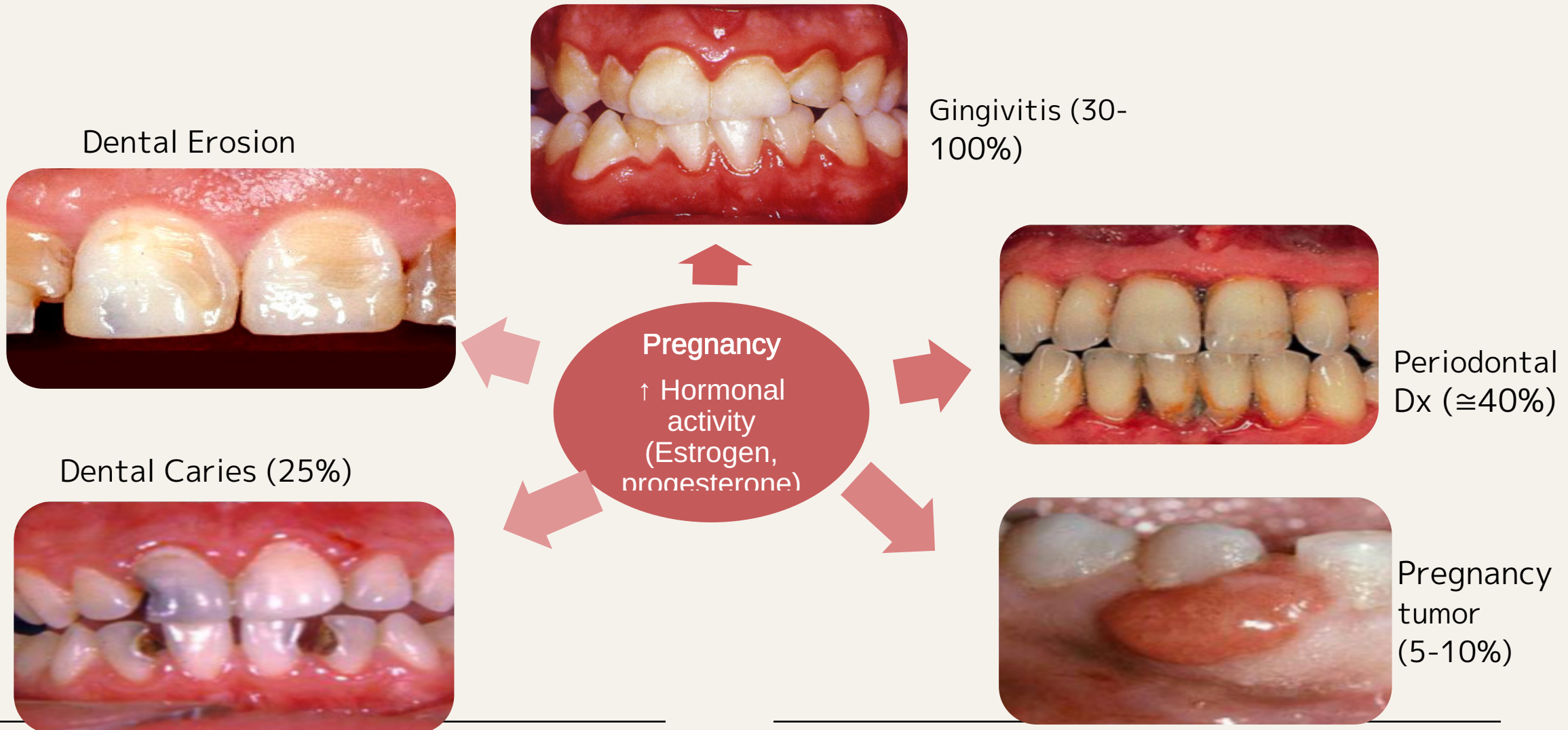
Bul et al 2019. Association between periodontal pathogens and systemic disease.

<https://doi.org/10.1016/j.bj.2018.12.001>

# ORAL DISEASE CONCERNS DURING PREGNANCY

- Preeclampsia
- Delivery of low-birth-weight babies
- Delivery of premature babies
- Miscarriage
- Possible risk of gestational diabetes

# PREVALENCE OF ORAL DISEASES IN PREGNANCY



# PERIODONTAL DISEASE IN PREGNANCY

- Maternal periodontitis is modestly (OR >1 but <2.5), but significantly associated with LBW.
- Variable definition impacted results

- Mixed results obtained
- Using dichotomous PD definitions = no significant association,
- Using pooled data of mean probing depth and attachment level = statistically significant association.

- A significant association between PD and preeclampsia was identified
- (OR = 2.79, 95% confidence interval CI, 2.01–3.01, p=0.0001).

# PERIODONTAL DISEASE AND PREGNANCY (FACT SUMMARY)

Positive associations between periodontal disease and:

- Preterm birth (RR 1.6; (95% CI, 1.3 - 2.0); 17 studies, n= 6,741
- Low birth weight (RR 1.7; (1.3 - 2.1); 10 studies, n= 5,693
- Preeclampsia (OR, 2.2; (1.4 - 3.4); 15 studies, n= 5,111
- Preterm LBW RR, 3.4; (1.3 - 8.8); 4 studies, n= 2,263

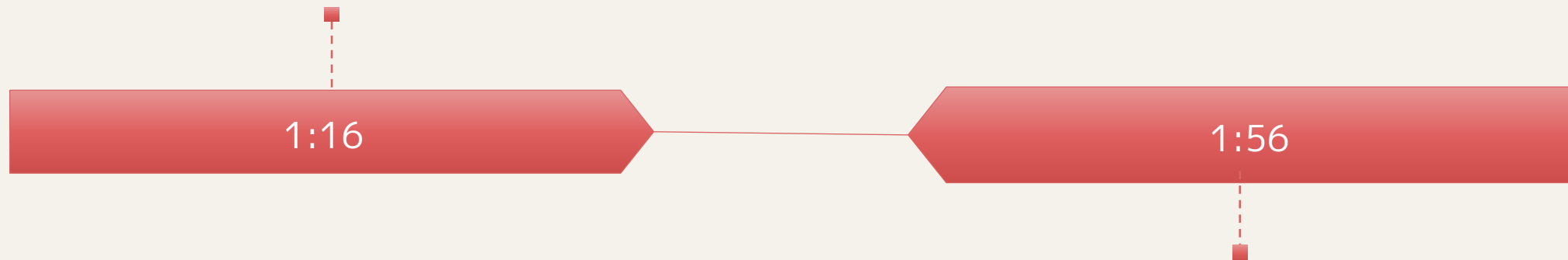
Based on these figures, estimated population-attributable fractions for periodontal disease were:

- 5% to 38% for preterm birth,
- 6% to 41% for LBW,
- 10% to 55% for preeclampsia.



# DENTAL CARIES AND PRETERM BIRTH

Women affected by dental caries during pregnancy did not show a significantly higher risk of PTB, OR: 1.16, 95% CI (0.90 to 1.49), I<sup>2</sup>=35%.\*



Also, the women with PTB did not show significant difference in Decayed Missing or Filled Teeth (DMFT) Summary mean differences: 1.56,  $p=0.10$  or Decayed Missing or Filled Surfaces (DMFS) Summary mean differences: 0.15,  $p=0.9$

Wagle M, D'Antonio F, Reierth E, Basnet P, Trovik TA, Orsini G, Manzoli L, Acharya G. Dental caries and preterm birth: a systematic review and meta-analysis. *BMJ Open*. 2018 Mar 2;8(3):e018556. doi: 10.1136/bmjopen-2017-018556. PMID: 29500202; PMCID: PMC5855295..

\*I<sup>2</sup> is a measure for quantifying inconsistencies across studies when conducting a meta-analysis. A higher value means more heterogeneity.

# DENTAL CARIES LBW, AND PRECLAMPSIA

Women affected by dental caries during pregnancy did not show a significantly higher risk of LBW OR: 1.46, 95% CI [1.00 to 2.13).

**Low birth weight**

**Pre-eclampsia**

Mean decayed teeth surface was found to be associated with increased odds of pre-eclampsia (adjusted OR 1.14, 95% CI 1.03, 1.27).

Weng, X., Lou, Y., Tao, R. et al. The association between low birth weight and dental caries among 11-to-13-year-old school age children in Ningbo, China. BMC Pediatr 21, 491 (2021). <https://doi.org/10.1186/s12887-021-02968-7>

Khader Y, Jibreal M, Burgan S, Amarin Z: Risk Indicators of Pre-Eclampsia in North Jordan: Is Dental Caries Involved? Gynecol Obstet Invest 2007;63:181-187. doi: 10.1159/000097633

# DENTAL CARIES AND PREGNANCY (FACT SUMMARY)

Women with dental caries had an increased risk of delivering large-for-gestational-age infants (odds ratio, 1.15; 95% confidence interval, 1.07, 1.23) compared to those without dental caries.

When women with dental caries were divided on the basis of treatment, no treatment had an increased risk of delivering large-for-gestational-age infants (odds ratio, 1.15; 95% confidence interval, 1.06, 1.24);

# CURRENT APPROACH TO INTEGRATED CARE AND PRENATAL ORAL CARE IN BC.

CONTACT US SEARCH

GPSC  
General Practice Services Committee

HOME WHO WE ARE WHAT WE DO OUR IMPACT NEWS

A patient medical home is a family practice that operates at an ideal level to provide longitudinal patient care.

System Change Team-based Care

**WHAT WE DO**  
Clinical Supports  
Collective Voice  
Incentives  
Practice Supports  
System Change  
• Patient Medical Homes  
• Primary Care Networks

**Access a team of health care providers to support quality care**  
BC is working to increase people's access to primary care by introducing more teams to the health care system. This is being done through patient medical homes in family practices,

**DOWNLOAD 1-PAGE INFO SHEETS**  
• [PMH & PCN: The Big Picture](#)  
• [Patient Medical Homes](#)  
• [Primary Care Networks](#)

**LATEST PMH/PCN NEWS**  
Updated information on Expressions of Interest for primary care networks >  
Supporting vulnerable patients who don't have access to technology >  
Update: PCNs by the numbers >

**QUICK LINKS**

## BCPHP Obstetric Guideline 19 MATERNITY CARE PATHWAY

### First or subsequent pregnancy visits

#### i) Review History and Perform Physical Exam

- Discuss options for maternity care and the woman's preference. Make referrals as appropriate
- Discuss woman's adjustment to pregnancy (mood, work, stress, family)
- Review health history and complete Part 1 on the Antenatal Record
- Record height and weight and calculate pre-pregnancy BMI
- Identify women who may need additional care and discuss plan of care
- Discuss lifestyle, including use of tobacco, alcohol, and other substances
- Review sexual history and identify related risk factors
- Discuss financial, housing and other support
- Discuss nausea, vomiting and fatigue
- Discuss the importance of good oral hygiene, accessing early preventive dental care and safety of treatment during pregnancy<sup>26</sup>
- Offer seasonal flu vaccine if available
- Perform complete physical examination including pelvic exam



## Pregnancy and Dental Health

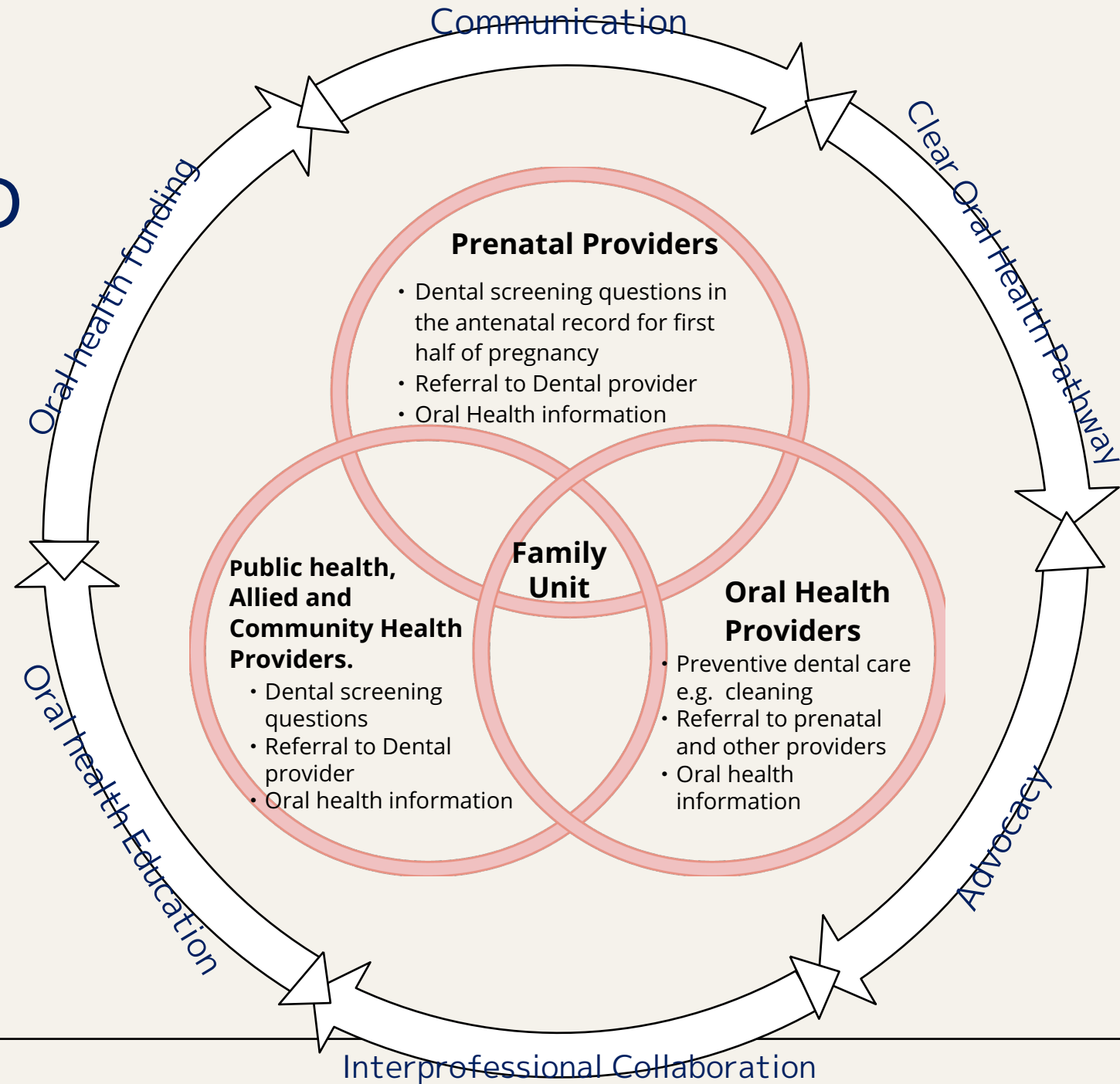
**Why is dental health during pregnancy important?**

- Choose to drink water between meals and snacks. Avoid frequent sipping on sweet



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# PROPOSED INTEGRATED PRENATAL ORAL HEALTH MODEL



# SUPPORTED STRATEGIES

- Interprofessional collaboration and education
- **Creation of care networks**
- **Clearly articulated referral process**
- **Care coordinator**
- Policies and guidelines
- Oral health education



- Include oral health screening in antenatal record
- **Standard oral health screening questions during prenatal visits**



- Oral health education
- Professional standards
- Universal oral health care coverage
- **Oral health advocacy**



# RECOMMENDATIONS FOR INTEGRATED PRENATAL ORAL CARE

- Promote oral health in pregnant women and newborn children
- Improve dental care access for pregnant women through interprofessional collaboration



<https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2013/08/oral-health-care-during-pregnancy-and-through-the-lifespan>

Source: Oral Health Care During Pregnancy Expert Workgroup. 2012. *Oral Health Care During Pregnancy: A National Consensus Statement*. Washington, DC: National Maternal and Child Oral Health Resource Center.

# Providing Optimal Care

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## Screening

- Evaluate oral health risk history
- Perform an oral exam
- Document findings in prenatal record and share with dentist

## Anticipatory Guidance

- Brush with soft toothbrush twice daily with fluoride toothpaste
- Floss daily
- Limit sugary snacks and drinks to meal times only
- Chew xylitol gum four to five times per day after eating
- Establish a dental home for the family
- Regular dental visits q 6 months (or at dental discretion)
- Reassure regarding safety of dental treatment during pregnancy

# Providing Optimal Care

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## Standardize Office Processes

- Modify prenatal flowchart to include dental screening, advice, and referral
- Develop a role for office staff in taking risk history, offering advice, and providing referral information
- Maintain an up-to-date list of local dental providers that see pregnant patients
- Use a referral form to improve communication
- Follow up to ensure dental care occurred
- Include oral handouts in prenatal packets



# SMILES FOR LIFE

smilesforlifeoralhealth.org/teach-curriculum/course-11-canadian-modules/

Smiles for Life  
A national oral health curriculum

Continuing Education Resources About Us SFL Media Contact Us My Account Login

## Canadian Modules

These presentations utilize the Smiles for Life 8 core module material now contextualized for a Canadian primary care audience.

We wish to formally recognize Dr. Anne Rowan-Legg, Dr. Andrea Feller and the Niagara Region Public Health Staff, Dr. Elizabeth Shaw, Dr. John O'Keefe, and Dr. Euan Swan for their contributions to the creation of the pediatric module. Our appreciation extends to Dr. Sonica Singhal, Lisette Dufour RDH, Dr. Andrea Feller, and Dr. Alexandra Nicolae for their review and update of the remaining 7 Smiles for Life modules.

- Course 1 - Relationship of Oral & Systemic Health +
- Course 2 - Child Oral Health +
- Course 3 - Adult Oral Health +
- Course 4 - Acute Dental Problems +
- Course 5 - Pregnancy & Women's Oral Health +
- Course 6 - Caries Risk Assessment Fluoride Varnish & Counseling +
- Course 7 - The Oral Exam +

<https://www.smilesforlifeoralhealth.org/teach-curriculum/course-11-canadian-modules/>

# CONCLUSION

- Increasing access to oral health care especially for vulnerable populations,
  - Promoting good oral health
  - Reducing prevalence of undesirable prenatal; outcomes
  - Reducing the prevalence of dental disease in the long term
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# REFERENCES

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