Chemung County
Perinatal Dental Coalition
July, 2007

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Retired Oral Maxillofacial Surgeon
Monday July 23, 2007
Management Coalition Conference

Oral Health
During
Pregnancy
And
Early Childhood
“Oral health care during pregnancy is crucial and should be available to all woman, regardless of income level. The Coalition is committed to working with dental and other health care providers to increase awareness of and support research on the possible link between periodontal disease and preterm, low birth weight babies.” June, 2001
Statistics

- USA: 4.12 million live births
- NY State: 253,001 live births
- Chemung County 1000 live births
- Over 50% of the mothers are on Medicaid
- 80 to 85 of the newborns are premature and/or have low birth weight (less than 37 weeks gestation and/or 2500 grams)
Premature & Low weight births

- Incidence unchanged in past 40 years
- Nationally PT 11% & LBW 7.7%
- NY State ranks 20th for premature births

- PT births = 75% of neonatal mortality and 50% of neurologic impairments in children
- PT births = 35% of money spent for infants and 10% of money spent for children
Systematic Review

- 25 (44) Studies on PT/LBW & Periodontitis
- 18 Studies suggested an association of PT/LBW with Periodontal Disease.
- 1998 **Dasanayake** Odds Ratio 3 times
d- 2004 **Devine** Odds Ratio nearly 3 times
- 2005 **Khader** Odds Ratio 4 times
Maternal Periodontitis and Prematurity. Part 1
Offenbacker et al. Ann Periodontology Dec ‘01

<table>
<thead>
<tr>
<th>Premature &lt;28 wks</th>
<th>LBW &lt;1000g</th>
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<tbody>
<tr>
<td>Healthy</td>
<td>25%</td>
</tr>
<tr>
<td>Mild</td>
<td>69.5%</td>
</tr>
<tr>
<td>M-S</td>
<td>5.5%</td>
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The 5.5% M-S Perio = 9.6% Premature/LBW

<table>
<thead>
<tr>
<th>Healthy</th>
<th>81.1%</th>
<th>Full Term Births</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>76.6%</td>
<td>Full Term Births</td>
</tr>
<tr>
<td>M-S</td>
<td>60%</td>
<td>Full Term Births</td>
</tr>
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</table>
The progression of periodontal disease during pregnancy (+2mm in 4 or more sites) in seen in 28.8% of women.

In this subset, there is a 14% increase of premature deliveries

With Incidence/Progression 21% LBW
Without Progression 11% LBW
Biological Model

Gram negative bacteria causes
Rising Prostaglandins, Interleukins and tumor necrosis factor
+ specific genotype

Critical levels of the chemical mediators

Endotoxins pass to the Fetal-Placental unit causing premature labor
Periodontal Disease & Preeclampsia

- Women with severe periodontal disease at delivery or progression of periodontal disease during pregnancy had a higher risk of preeclampsia.
- At delivery – odds ratio 2.4
- Progression during pregnancy- odds ratio 2.1  
  Boggess et al 2003

--------------------------------------------

- Periodontal disease – odds ratio 3.47  
  Canaki 2004
Lopez et al in Santiago, Chile

Rx Chlorhexidine (11% alc) + Periodontal care

<28wk = rate of PT/LBW was 2.5%

Same treatment only after delivery, the rate of PT/LBW was 8.6%

Reported in J Perio Nov ‘05 with 400 women randomly assigned to one or other group
Jeffcoat et al in the USA

- Rx in second trimester = Premature births
- Control group (no treatment) = 6.3%
- Dental prophylaxis + placebo = 4.9%
- Periodontal Rx + antibiotics = 3.3%
- Periodontal Rx + placebo = 0.8%

Reported J Perio 2003
Multicenter (4) study in USA

 Rx group 413            Control group 410
 PT births 12%          Control 12.8%
 Birth wt. 3239 gm.     Control 3258 gm.

Conclusion: Improved Periodontal status but not pregnancy outcomes (PT/LBW).

NB. Less spontaneous abortions 5/14
Maternal Oral Health Resource Guide

This booklet is available from
National Maternal and Child Oral Health Resource Center
Georgetown University
Box 571272
Washington, DC 20057-1272
Phone 202 784-9771 or
E-mail info@mchoralhealth.org
How does PDC operate in Chemung County?

- Pregnant woman is seen in OB office or OB agency and signs HIPA consent & is referred to private dentist or dental clinic.
- Dental hygienist does a standardized test and periodontal care before delivery. Referred for smoking cessation PRN.
- After delivery, the woman referred back to DDS for PSR evaluation and treatment. Hygienist advises on care of newborn.
What are the results after 1 year

► 565 or 56.5% of the mothers referred for periodontal care.
► 23% of the 565 received periodontal care.
► 75 received care in the county dental clinic
► 50 received care at their private dentist.
► Starting in July 2007 mothers will be seen postpartum and referred for periodontal Rx
► Clinic patients will be called after July, ’07.
Oral & Dental Problems Associated with Pregnancy

- Dental Caries
- Erosion
- Pregnancy Gingivitis (and oral contraceptive)
- Epulis
- Tooth Mobility
- Dental Considerations in Labor

Already covered periodontal disease and the possible link to PT/LBW.
Dental Caries during pregnancy

► “Calcium demand causes a loss of teeth during pregnancy”. **Not True.**

► In reality, any increase in tooth decay during pregnancy can be attributed to diet and poor oral hygiene

► A contributing factor can be the repeated acid attacks with vomiting early and regurgitation later in pregnancy
Increased risks for tooth decay in pregnancy

- Food cravings during pregnancy.
- High sugar snacks especially in 1st trimester in an attempt to prevent nausea.
- Gingival bleeding during pregnancy is an excuse to decrease oral hygiene.
- Erosion – vomiting (acid) in pregnancy can cause dental erosion which makes the teeth more subject to decay.
How to avoid dental erosion in pregnancy

- After vomiting, rinse with 1 tsp of baking soda in a cup of water.
- Regular use of a neutral fluoride mouthwash bid.
- Firm tooth brushing immediately after vomiting should be avoided to reduce the risk of dental abrasion.
Pregnancy Gingivitis

- This gingivitis presents as swollen, red and bleeding gingival tissue (2-8 month).
- Pregnant women with poor oral hygiene are at increased risk for this problem.
- It may be generalized or localized and is reversible with proper oral hygiene.
- The same hormonal and vascular changes can cause this gingivitis with use of oral contraceptives.
Pregnancy Epulis

► Just an exaggeration of an area of pregnancy gingivitis. It is red hyperplastic growth of the gum tissue between two teeth and tend to bleed easily.

► The elevated tissue usually resolves without treatment postpartum. If it does not resolve spontaneously, it can be removed surgically.
Dental problems in labor & delivery

► Severe periodontal problems may cause increased tooth mobility. This can be a problem during anesthesia for a C-section.

► Loose fillings, unstable bridge work and ill-fitting removable partial dentures are all candidates for aspiration.

► All of these are good reasons for the pregnant woman to seek dental care.
Dental Care During Pregnancy

- Dental Care is safe and appropriate during pregnancy.
- Needed dental treatment can be provided throughout pregnancy. The ideal time is between 14\textsuperscript{th} to 20\textsuperscript{th} weeks.
- Even necessary dental x-rays can be taken using the proper abdominal and neck shield.
- Extensive elective dental care can be deferred.
Antepartum Dental Radiography and Infant Low Birth Weight  
JAMA April 28, 2004

Exposure >0.4 mGy to central thyroid gland

<table>
<thead>
<tr>
<th>Mother</th>
<th>Infant</th>
<th># &gt;0.4 mGy</th>
<th>No Xrays</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,117</td>
<td>LBW</td>
<td>21 or 1.9%</td>
<td>89%</td>
</tr>
<tr>
<td>336</td>
<td>TLBW</td>
<td>10 or 3%</td>
<td>85%</td>
</tr>
<tr>
<td>4500</td>
<td>NBW</td>
<td>45 or 1%</td>
<td>89%</td>
</tr>
</tbody>
</table>
Conclusion: Dental Xrays during pregnancy are associated with LBW specifically TLBW.

All of this is based on >0.4 mGy to the central portion of the thyroid gland.

Remember

- 1 periapical is 0.08 mGy
- 4 bitewings are 0.22 mGy
- 1 Panorex is 0.12 mGy
Questions about dental care?

- Periodontal care should be priority.
- Pain & swelling should be resolved.
- Dental x-rays with shielding can be done.
- Local anesthesia with epinephrine is safe.
- Dental restorations are appropriate.
- The pregnant woman should lean or be propped toward her left side and in a semi sitting position. It allows for venous return.
Drugs during pregnancy

**Useable**
- Antibiotics - Penicillin, Amoxicillin, Cephalosporin, Clindomycin, chlorhexidine mouthwash
- Analgesics – Acetaminophen, Codeine, Hydrocodone, Morphine

**Unacceptable**
- Antibiotics – Tetracyclines, Quinolones, Clarithromycin
- Analgesic – Aspirin & NSAIDS (Ibuprofen)
- Hypnotics – Valium or Versed and barbiturates
Postpartum dental care of mother & infant

► In the Perinatal Dental Coalition, the last visit of the mother is the 1st for the infant.
► Who is responsible for advice on the oral care of the infant 0 – 3 years?
► The average infant has 11 well-child visits.
► 28% of children 2-5 yrs. of age have decay
► In NYS each yr. 2900 children <6 years old require hospital care for dental caries
Early childhood dental care

- ECC or Early Childhood Caries is a virulent form of decay caused by Strep mutans from an adult. Bottles or sippy cups provide the substrate. Use only H2O.
- Saliva sharing habits should be avoided.
- Wipe infants teeth after eating with soft cloth or toothbrush
- Young children need supervised tooth brushing. Fluoride paste = size of pinky nail
Fluoride for children

► Best source – municipal water at 1 ppm
► Only if necessary – Fluoride supplements

Test H2O = <0.3 ppm then 0 up to 6 mo, then .25 mg to age 3, then .50 mg to age 6 and 1 mg from age 6 to 16.
If water 0.3 to 0.6 ppm it is 0 up to age 3, .25 mg to age 6 and 0.5 mg from 6-16 years
No F supplements if H2O > 0.6 ppm
# Daily Fluoride Intake

<table>
<thead>
<tr>
<th>Age</th>
<th>Adequate Intake</th>
<th>Tolerable Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6 months</td>
<td>0.01 mg/day</td>
<td>0.7 mg/day</td>
</tr>
<tr>
<td>7-12 months</td>
<td>0.5 mg/day</td>
<td>0.9 mg/day</td>
</tr>
</tbody>
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Using 1 ppm of fluoridated water for dilution

<table>
<thead>
<tr>
<th>Age</th>
<th>Liquid Formula</th>
<th>Powdered Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6 months</td>
<td>0.5 mg/day</td>
<td>1 mg/day</td>
</tr>
<tr>
<td>7-12 months</td>
<td>0.5 mg/day</td>
<td>1 mg/day</td>
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Do You Have Any Questions?

Acknowledgements

► Jayanth Kumar, DDS, MPH
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► Sangeeta Gajendra, DDS, MPH
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