

Medical Dental Integration: *Systemic Implications*

AMANDA WASHBURN, RDH, CPHDH



Smiles for Life
A national oral health curriculum

Oral Health Is...

The Relationship of Oral and Systemic Health < Prevalence & Sequelae < Oral Health Is...

Oral health is not just absence of disease, but the presence of oral wellness - healthy gums, teeth, tongue and the ability to speak, chew, enjoy food, and smile.

Oral health is also being free of mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's biting, chewing, smiling, speaking, and psychosocial well-being.

Oral wellness affects:

- Obtaining a job
- Confidence
- Enjoyment

Oral pain is linked to:

- Poor school performance in children
- Work loss in adults to care for themselves and their children
- Difficulty chewing and inadequate nutrition

The Disconnect

The Relationship of Oral and Systemic Health < Prevalence & Sequelae < The Disconnect

Access to care remains a major issue. Consider the following:

- 111 million people visit primary care annually, but do not see a dentist.
- 27 million people visit a dentist annually, but not a primary care provider.
- Medical providers lack comfort with oral exams and systems for dental referrals.
- Dentists often less comfortable with young children, pregnant women, & patients with special care needs.
- These are opportunities for better collaborative learning and management

Goals of this curriculum are to address these 3 concerns by training primary care and dental health professionals to prevent oral disease and prepare them with a basic approach to frequently encountered oral problems.

Inflammation & Systemic Disease

The Relationship of Oral and Systemic Health < Interrelationships Between Oral and Systemic Health and Disease < Inflammation & Systemic Disease

Inflammation constitutes a major mechanism for the observed link between oral disease, specifically periodontitis, and systemic diseases, although direct cause-and-effect is difficult to establish.

Strong evidence exists for a causal link between periodontal disease and diabetes.

Emerging evidence for links with other conditions including:

- Obesity
- Coronary artery disease
- Metabolic syndrome
- Pregnancy outcomes/Preterm labor
- Oral health after menopause
- Rheumatoid Arthritis



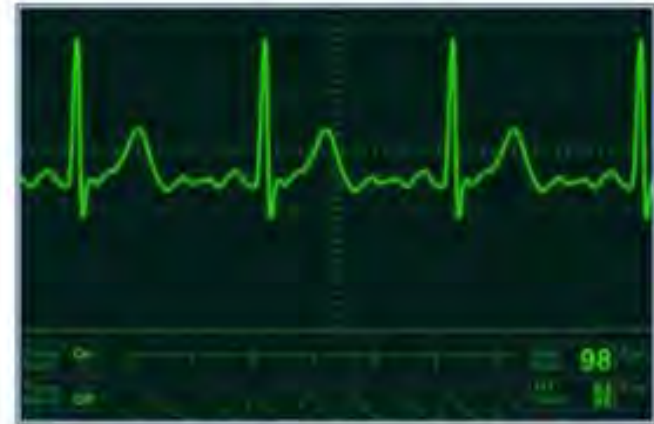
Alexander Rath/Photos.com

Heart Disease

The Relationship of Oral and Systemic Health < Interrelationships Between Oral and Systemic Health and Disease < Heart Disease

Periodontal disease is associated with coronary artery disease and cerebrovascular disease, though the impact is unclear.

- Studies support an association between periodontitis and atherosclerotic vascular disease, but not a causative relationship.
- Inflammatory cytokines implicated in atherogenesis are also produced in periodontitis.
- Treatment of periodontal disease has not been shown to reduce cardiovascular risk.



Dan Ionut popescu/Photos.com

Obesity & Diabetes

The Relationship of Oral and Systemic Health < Interrelationships Between Oral and Systemic Health and Disease < Obesity & Diabetes

The oral-systemic link between obesity and oral disease is intimately tied up with diabetes in a "three-way street."

- Fat tissue is a metabolically-active organ that produces tumor necrosis factor alpha (TNF α) and interleukin 6.
- These cytokines promote bone breakdown and inflammation, processes that both potentiate periodontal disease.
- TNF α also causes insulin resistance that predisposes to Type 2 diabetes.
- Poor glycemic control is associated with periodontal disease.
- Periodontal disease then leads to worsening glycemic control, creating a vicious cycle.



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Diabetes & Glycemic Control

- Poor glycemic control is associated with a threefold increased risk of having periodontitis in diabetics versus controls.
- Diabetics with good glycemic control have no significant increased risk of periodontal disease.
- Chronic infection (like periodontal disease) worsens glucose control.
- Treatment of periodontal disease results in a 10-20% improvement in glycemic control.

Oral Implications of Diabetes

- ▶ Decreased Salivary Flow
 - ▶ Increased Thirst
 - ▶ Increased Plaque *despite* Proper Homecare
- ▶ Increased Glucose in Saliva
 - ▶ Increased Risk of Caries
- ▶ Increased Risk of “Thrush” Oral Candidiasis
 - ▶ Especially Important to Clean Dentures Daily
 - ▶ Let Tissues “Breathe” Overnight

Rheumatoid Arthritis

The Relationship of Oral and Systemic Health < Interrelationships Between Oral and Systemic Health and Disease < Rheumatoid Arthritis

There is an association between periodontitis and the development of RA in patients who are susceptible.

Aggregatibacter actinomycetemcomitans can contribute to periodontitis by producing a toxin that can trigger hypercitrullination in neutrophils.

- Hypercitrullination can trigger the formation of autoantibodies.
- Treatment of periodontal disease in patients with RA has led to reductions in some markers of disease activity in RA patients (ESR, TNF- α titers, and disease activity scores).



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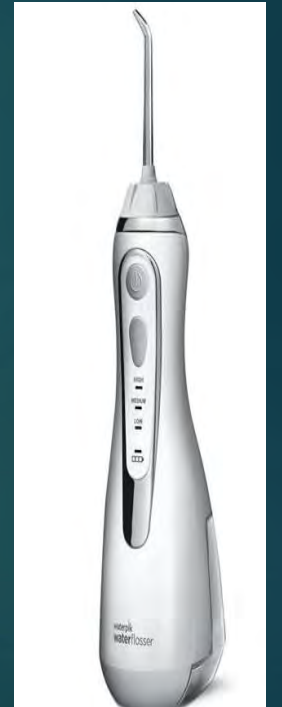
Oral Implications of RA

- ▶ Both RA and gum disease are linked to severe inflammation, which is your body's natural immune response to prevent foreign bodies like viruses and bacteria. Because RA is an autoimmune disease, inflammation is triggered despite there being no foreign bodies present. Deltadentalins.com
- ▶ RA can affect patients TMJ, affecting their ability to open and close their mouth comfortably.

Adaptations for RA



- ▶ Both RA and Periodontal Disease are linked to severe inflammation.
 - ▶ Because RA is an autoimmune disease, inflammation is triggered despite there being no foreign bodies present.
- ▶ RA can affect patients TMJ, affecting their ability to open and close their mouth comfortably.



Menopause

The Relationship of Oral and Systemic Health < Interrelationships Between Oral and Systemic Health and Disease < Menopause

Oral health is an important part of counseling for peri- and postmenopausal women.

- Incidence of periodontitis increases after menopause.
- Hormone replacement therapy appears to be protective.
- Primary care clinicians should counsel peri- and postmenopausal women about maintaining good oral hygiene.



Jupiter Images/Photos.com

Burning Mouth Syndrome

- ▶ Chronic or Recurrent Burning in the Mouth *Without* an Obvious Cause
 - ▶ May Affect
 - ▶ Tongue
 - ▶ Gum Tissue
 - ▶ Lips
 - ▶ Inside of Cheeks
 - ▶ Palate (Roof of Mouth)
 - ▶ Symptoms
 - ▶ Burning or Scalding Sensation
 - ▶ Tingling, Stinging or Numbness
 - ▶ Dry Mouth with Increased Thirst
 - ▶ Change of Taste, often Bitter or Metallic, or Loss of Taste
 - ▶ Risk Factors
 - ▶ Female
 - ▶ Perimenopausal, Menopausal, Postmenopausal
 - ▶ 50+ years of age

Substance Use and Abuse

The Relationship of Oral and Systemic Health < Interrelationships Between Oral and Systemic Health and Disease < Substance Use and Abuse

Drugs and alcohol have both total body and oral health consequences.

Nicotine causes vasoconstriction of vessels in the mouth.

Tobacco users are prone to:

- Lung and oral cancer
- Periodontal disease (even among teenage smokers)

Alcohol users can develop:

- Oral cancer (synergistic with tobacco)
- Poor hygiene and resultant caries or periodontal disease

Marijuana:

- Periodontitis
- Leukoplakia

Methamphetamines:

- Bruxism
- Decreased saliva production
- Poor hygiene
- Rampant Caries (e.g., meth mouth)

Cocaine:

- Increased decayed and missing teeth

"Meth Mouth"



James Cecil, DMD, MPH

Red/White Leukoplakia



Brad Neveille, DDS

Oral Cancer



Ellen Eisenberg, DMD

Medical Marijuana Oral Implications

- ▶ Known to have Significantly Higher Number of Caries
 - ▶ Particularly on normally easy-to-clean smooth surfaces
- ▶ Smoking
 - ▶ Gingival Enlargement
 - ▶ Erythroplakia
 - ▶ “Cannabis Stomatitis”
 - ▶ Hyperkeratosis and Leukoplakia
 - ▶ Can turn into Malignant Neoplasias
 - ▶ Chronic Inflammation of the Oral Mucosa
- ▶ Possibility of Earlier Onset of Chronic Periodontitis
 - ▶ Significant Increase of high pocket depths ($\geq 4\text{mm}$) and attachment loss
 - ▶ Significant Increase of Alveolar Bone loss

Nutrition

The Relationship of Oral and Systemic Health < Interrelationships Between Oral and Systemic Health and Disease < Nutrition

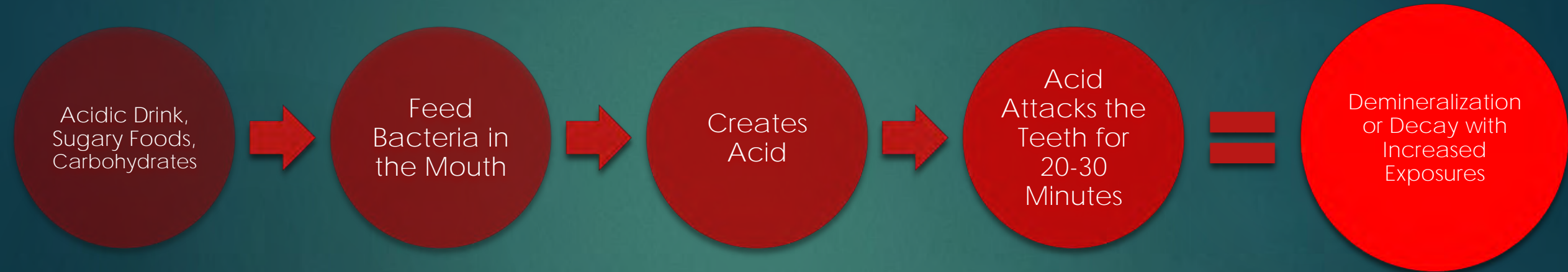
Nutrition and oral health interact in several ways:

- Frequent ingestion of sugary snacks and beverages contributes to obesity, and to dental caries
- Poor dentition, dental pain, and chewing problems due to missing teeth interfere with eating
- Children, special needs patients, and the elderly are vulnerable and have few reserves when nutritionally deprived



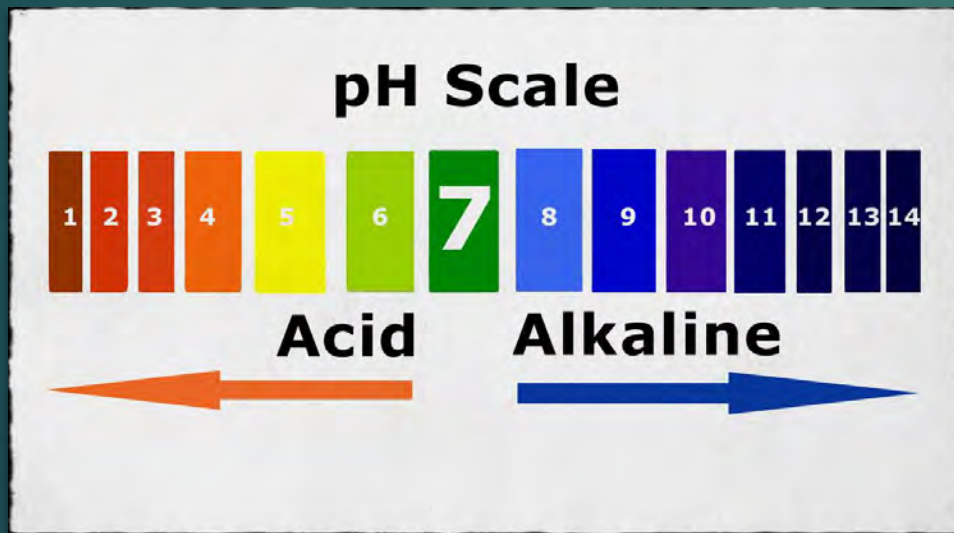
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Acid-Decay Cycle



*Diabetics already have an increased salivary glucose level

pH Level of Common Drink Choices



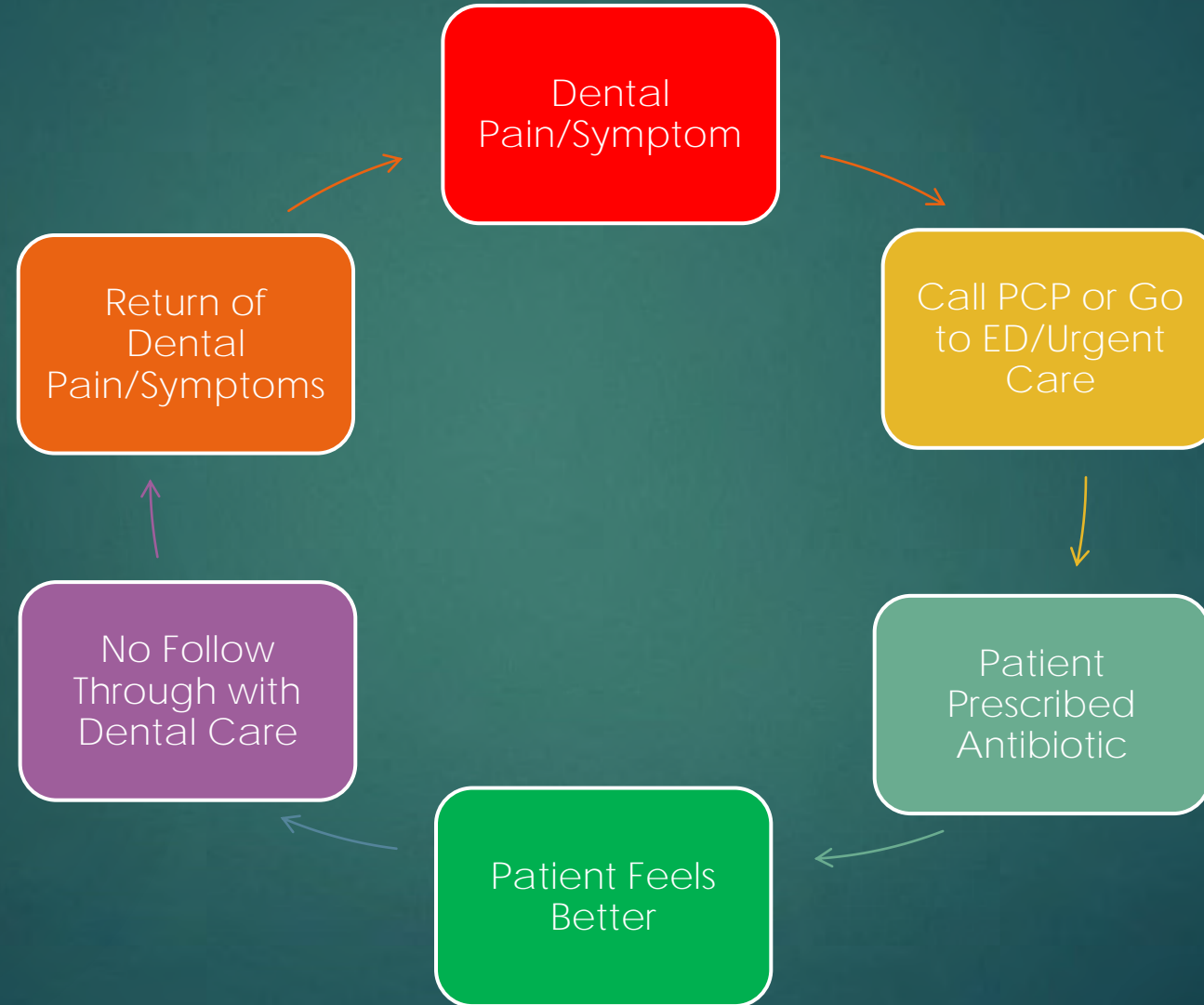
Any Number Below 5.5 pH Attacks the Enamel for 20-30 minutes from Each Sip

Drink	pH Level
Arizona Iced Tea	2.85
Barq's Root Beer	4.11
Coca-Cola Classic	2.37
Coca-Cola Diet	3.1
Country Time Lemonade	2.72
Gatorade Lemon-Lime	2.97
Monster Energy	3.48
Pepsi	2.39
Pepsi Diet	3.02
Redbull Regular	3.43
Snapple Kiwi Strawberry	2.77
Sprite	3.24
Sunkist Orange	2.98
Tropicana 100% Orange Juice	3.8
Vitamin Water Power C Dragonfruit	3.05
Vitamin Water Zero Go-Go Mixed Berry	3.08
Welch's Apple Juice	3.57
Aquafina	6.11
Dasani	5.03

Closing the Loop: Integrating Oral Health within Primary Care

AMANDA WASHBURN RDH, CPHDH

Interrupt the Cycle





Goal:
Primary Care Oral
Health Referrals

Chain of Events to Interrupt the Cycle

Patient Calls Primary Care with Oral Health Concern

Nurses Triage Call:
Schedule with Primary Care Clinician?
Refer for an Emergency Visit with Dental Office?

Referral to CPHDH or Care Coordinator

CPHDH or Care Coordinator Contacts Patient

Referral Made to Dental Office

Treatment at
Dental Office

Medical Records

- ▶ *Document, Document, Document!!!*
 - ▶ This is helpful when trying to break the cycle.
 - ▶ Keep Track of how often a patient is calling for the same problem.
 - ▶ Antibiotic Seeking
 - ▶ This may trigger social work intervention.
 - ▶ Helps to keep track of patients barriers to oral health care.
 - ▶ Helps build relationship with local dental offices.
 - ▶ You find out when a patient:
 - ▶ Doesn't follow through with referral
 - ▶ Late Cancels or No Shows
 - ▶ No Follow Thru with Recommended Treatment

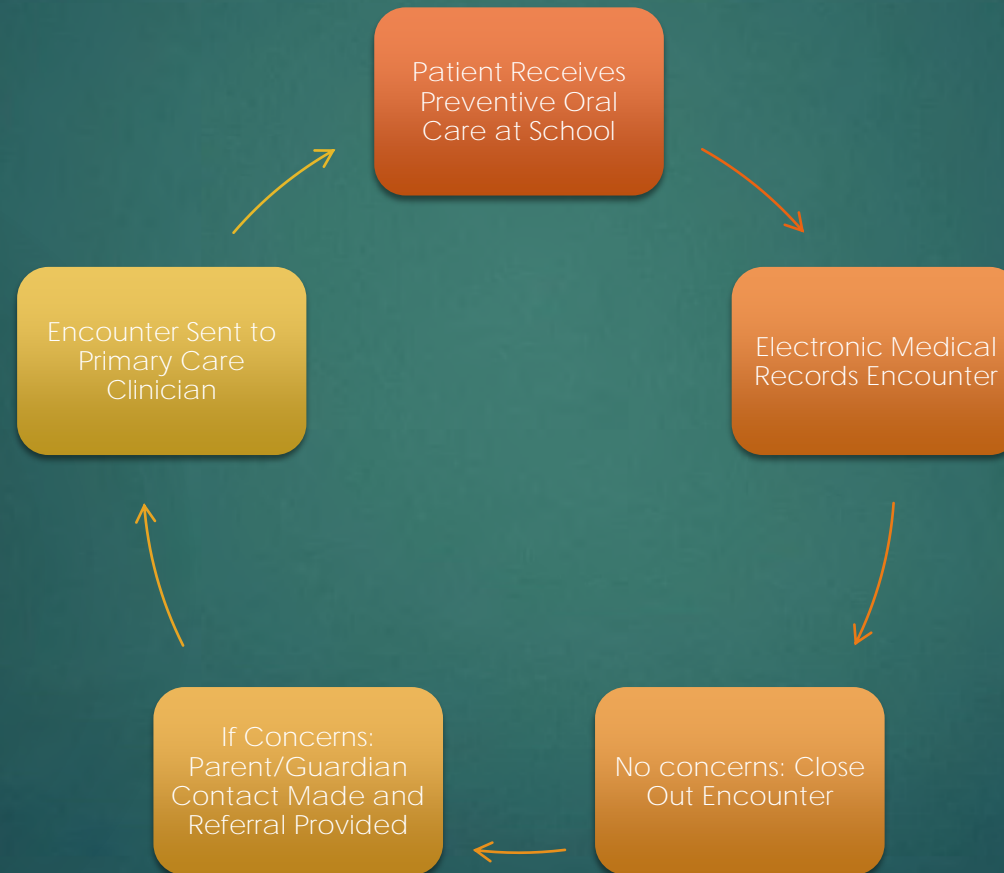
How Does Medical Dental Integration Help?

- ▶ This helps to close the loop with a patients overall health.
 - ▶ Bidirectional Referrals
 - ▶ Oral Signs of Systemic Concerns
 - ▶ Chronic Severe Aphthous Ulcers (canker sores)
 - ▶ Avoid Sodium Lauryl Sulfate (SLS)
 - ▶ Increased Stress, Deficiencies (B12, Folic Acid, Zinc, Iron, Calcium), Autoimmune Disease
 - ▶ HPV- may show up as a cauliflower lesion in the oral cavity

How Does Medical Dental Integration Help?

- ▶ Complicated Overall Health with Oral Health Concerns
 - ▶ Information is shared with the Primary Care Clinician via referral
 - ▶ This information may include:
 - ▶ What the concerns were and how many areas
 - ▶ What treatment was provided
 - ▶ What treatment recommendations were made
 - ▶ Were any referrals made for further treatment

Example of EMR Process for Patients seen by a School Based Dental Program



What does a Dental Hygienist do in Primary Care?

- ▶ Refer Patients
 - ▶ Referrals through Electronic Medical Records Management Systems
 - ▶ SBAR (Situation-Background-Assessment-Recommendation)
 - ▶ Meet with patients at Primary Care appointments
- ▶ Case Management
 - ▶ Follow up with Emergency Department Patients
 - ▶ Comes from Primary Care Practice Referral
 - ▶ Inpatient Treatment Planning for Follow-up Care after Discharge

Questions? Comments?

THANK YOU!

Additional Resources Available at: nhoralhealth.org
Navigate to Events