

**University of Massachusetts Medical School  
ORAL HEALTH “SPIRAL” CURRICULUM**

**Foundations of Medicine Year 1**

Course	Topic/Format
Orientation	Not possible to talk to students about oral health
Genetics	Twin Studies lecture – cleft-lip heritability rate covered Periodontitis and genetic factors mentioned* <i>Lecture</i>  Multi-factorial genetic lecture - Cleft lip/palate explained as an example of a ‘threshold trait’ <i>Lecture</i>  PubMed search for genetic topics in clinical medicine, oral health topics are options as choices for students (periodontitis) <i>Home study exercise (optional)</i> <i>See also DSF – Cleft Lip covered as clinical correlation</i>
Building Working Cells and Tissues (BWCT) (~ <i>histology</i> )	Curriculum too basic to include specific parts of the body
Development, Structure & Function (DSF) (~ <i>anatomy and physiology</i> )	Oral anatomy and embryology, histology <i>Lecture 0.5 hours</i>  Salivary glands (with clinical correlates on xerostomia) <i>Lecture 0.5 hours</i>  Importance of oral health, clinical examination and clinical correlates <i>Lecture – hands-on practice Smiles for Life Module 7</i> <i>Lecture 1.0 hrs</i>  Clinical Masses in Neck <i>Lecture</i>  Skull and face <i>Lecture, Dissection</i>  Cranial nerves <i>Lecture, Dissection</i>  Radiology of Head and Neck <i>Lecture</i>  Head and Neck embryology <i>Lecture</i>  Development cleft lip and palate; repair of cleft palate <i>Lecture</i>  Clinical anatomy – airway, larynx, pharynx <i>Lecture, Dissection</i>
Principles of Pharmacology	No specific topics – material covered too basic Will work with Longitudinal Pharmacology Committee
Cancer Concepts (CA)	<u>ICE case</u> – Tongue cancer case – <i>Case Review</i> <ul style="list-style-type: none"> <li>▪ Presenting history (review from Doctoring), including other mouth cancers</li> </ul>

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	<ul style="list-style-type: none"> <li>▪ Describe exam, differential, workup (review from Doctoring, DSF)</li> <li>▪ Photos of gross path, high risk areas of mouth</li> <li>▪ Next steps – biopsy, CT, Panorex, other tests*</li> <li>▪ Show cellular pathology (review from DSF, and normal histology from BWCT)</li> <li>▪ Break bad news* (review from Doctoring)</li> <li>▪ Consider prevention – (review from determinants of health, genetics, infection) including smoking, ETOH, HPV (review from Infections), genetic (review from Genetics), exams at all physicals (review from Doctoring)*</li> <li>▪ Treatment – side effects*</li> <li>▪ Mouth care during/post – manage complications</li> <li>▪ Photos mucositis, thrush</li> </ul> <p>Hematological disorders (leukemia, lymphomas)*</p>
Infections	<ul style="list-style-type: none"> <li>▪ Bacterial Normal Flora (slides on mouth flora, biofilm, periodontitis, caries, endocarditis prophylaxis)</li> <li>▪ Damage to the host by bacterial pathogens <i>Lecture (slides on perio/caries bacteria)</i></li> <li>▪ Streptococcus <i>Lecture(slides on oral systemic complications e.g. strep GAS – carditis)</i></li> <li>▪ Opportunistic pathogens: pseudomonas and anaerobic bacteria <i>Lecture (slides on:</i> <ul style="list-style-type: none"> <li>- mouth normal flora</li> <li>- pathophysiology – endogenous infections, periodontal infections, aspiration pneumonia, human bite wound</li> <li>- Illustrative case – 46 y/o man with poor dentition – spread infection, ? improve)</li> </ul> </li> <li>▪ Papillomavirus <i>Lecture (slides on oral – cancer link)</i></li> <li>▪ Herpes <i>Lecture (slides on oral manifestations inc. perioral, gingivostomatitis)</i></li> <li>▪ HIV <i>Lecture (slides on oral symptoms and manifestations e.g. oral candidiasis)</i></li> <li>▪ Fungi <i>Lecture (slides on thrush)</i></li> <li>▪ Prophylaxis and Infection Control <i>Lecture and Home Study Exercise</i></li> </ul>

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Doctoring (~ <i>Principles of Clinical Medicine I</i> )	<p>Knowledge</p> <p>Skills</p> <p>Interview patients across the life cycle*</p> <p>Address cultural and linguistic aspects inc using interpreters*</p> <p>Obtain a medical history inc sexual history and gender orientation*</p> <p>Perform general physical exam and assess habits*</p> <p>Assess basic mental health status of patients*</p> <p>Provide patient education and health counseling i.e. motivational interviewing, substance use*</p> <p>Breaking Bad News*</p> <p>Obtain an oral and dental history* recognize oral and mental health status as vital to a comprehensive history* – this topic added to student handouts on interviewing 2011</p> <p>Perform head, neck and proper systematic mouth exam that includes recognition of caries, periodontal disease, dental erosion from eating disorders; precancerous lesions and a bimanual exam for oral cancer* - faculty development added; lecture added 2008 - see DSF; <i>Smiles for Life Module 7 (adult slides)and some Module 1 (Systemic Oral Health)</i></p> <p>(7 components on official PE exam checklist for mouth; 5 for appropriate lymph nodes – revised 2011)*</p> <p><b><u>MOUTH</u></b></p> <ol style="list-style-type: none"> <li>1. ___ Examine patient without causing discomfort</li> <li>2. ___ Inspect lips, gums, buccal mucosa, palate and floor of mouth.</li> <li>3. ___ Inspect all surfaces of all teeth</li> <li>4. ___ Inspect posterior pharynx, uvula and tonsils</li> <li>5. ___ Inspect base and lateral elements of tongue using gloves and gauze.</li> <li>6. ___ Palpate floor of mouth with bimanual exam.</li> <li>7. ___ Palpate temporomandibular joint as patient opens and closes jaw</li> </ol> <p><b><u>NECK</u></b></p> <p><b>Palpate lymph nodes:</b></p> <ol style="list-style-type: none"> <li>8. ___ Tonsillar nodes (at angle of jaw).</li> <li>9. ___ Submandibular nodes (under jaw).</li> <li>10. ___ Submental nodes (under chin).</li> <li>11. ___ Superficial cervical nodes (in front of and on top of sternocleidomastoid muscle).</li> <li>12. ___ Posterior cervical nodes (behind and posterior to sternocleidomastoid muscle).</li> <li>13. ___ Supraclavicular nodes (above collarbone).</li> <li>14. ___ Palpate thyroid.</li> <li>15. ___ Technique: Palpate isthmus and lobes <b>AND</b> in correct anatomical location <b>AND</b> ask patient to swallow.</li> </ol>

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	<p>Attitude</p> <p>Recognizing oral health information as vital to a comprehensive medical history</p> <p>Including oral and mental health status elements in the complete physical exam</p>
Host, Defense & Blood (HDB) (~Immunology)	Chronic inflammation introduced – <i>refused to add any oral health component</i>
FOM 1 in general	Employing foundational basic and clinical science in oral and systemic health

## UMMS ORAL HEALTH “SPIRAL” CURRICULUM

### Foundations of Medicine Year 2

Course	Topic/Format
Cardiovascular <sup>#</sup>	Hypertension and cardiovascular disease (CVD) review Links between periodontitis and CVD
Respiratory <sup>#</sup>	Mouth Infections – caries, periodontitis – risk for pneumonia and prevention through bundles
Musculoskeletal <sup>#</sup>	Sjogrens TMJ
Kidney/Urinary	
The Brain <sup>#</sup>	Neurological sciences - pain syndromes including oral pain Depression and common mental health conditions
Digestive System <sup>#</sup>	Affect of reflux, bulimia on teeth/mouth
Reproduction <sup>#</sup>	Affect of periodontitis on preterm birth, low birth weight
Endocrinology <sup>#</sup>	Endocrinology including reproductive health Diabetes link to periodontal disease and vice versa
Nutrition	Healthy eating behaviors: Obesity, Eating disorders, Caries risk – FOM 3 – Care of Families, Pediatrics
ICE <sup>#</sup>	<ul style="list-style-type: none"> <li>▪ ? ICE – periodontitis/caries – adult                             <ul style="list-style-type: none"> <li>- heart disease – inflammation</li> <li>- local infection – bacteria dx</li> <li>- outpt/inpt abx</li> <li>- prevention – contributing factors</li> </ul> </li> </ul>
Doctoring	Violence – domestic Integrate information from physical exam, history, other data to arrive at a differential diagnosis*  Pediatric exam – <i>Smiles for Life Module 7</i> Pedi Slides
Determinants of health (DOH) <sup>#</sup> Population Health Clerkship (PHC)	Oral Health Population Health Clerkship (2 weeks) <ol style="list-style-type: none"> <li>1. Assess the oral health of a population.</li> <li>2. Describe stories of patients seeking dental care</li> <li>3. Collaborate with interprofessional team members</li> <li>4. Analyze oral health advocacy resources.</li> <li>5. Identify oral health policy issues.</li> <li>6. Analyze the role of the community/public health partners by doing service learning</li> </ol> Future goal: Have each CHC ask their populations a series of general questions that include oral health

## UMMS ORAL HEALTH “SPIRAL” CURRICULUM

### Foundations of Medicine Year 3

Course	Topic/Format
Care of Perioperative and Maternal Care <sup>#</sup> (surgery; OB/GYN)	Reproductive health* Caries prevention for offspring, periodontitis, and pregnancy outcomes; safety of dental treatment in pregnancy – Look for opportunity to use <i>Smiles for Life (SFL) Module 5</i> Pregnancy and Oral Health in 2012
Care of Families <sup>#</sup> (pediatrics, Family Medicine, Psychiatry, Pain Management)	Look for opportunity to use: <i>Smiles for Life Module 2</i> Pediatric Oral Health Offer oral pain examples for Pain curriculum Nutrition and impact on oral health Child abuse and oral manifestations*
Care of Adults <sup>#</sup> (Internal Medicine; Neurology)	Hypertension and cardiovascular disease ICU bundling for pneumonia aspiration caused by oral bacteria through oral care Adult/Geriatric oral health – periodontal disease, lesions, dentures Look for opportunity to use: <i>Smiles for Life Module 3</i> Adult Oral Health  Medication and therapeutic impact on oral health – radiation, medications Obesity, eating disorders
Emergent Clinical Problem Solver <sup>#</sup>	SFL Urgent Care lecture Learn oral anesthesia blocks Varnish for acute pain Violence and trauma including oral trauma
Clerkships in general	Formulate treatment options for the patient to include communication of risks and benefits of plans* Obtain informed consent* Employing appropriate use of technology and recognizing limits of technology*

## Foundations of Medicine Year 3

Course	Topic/Format
<p>Interstitial Curriculum (1/2 day each)</p>	<p><u>Oral Health Interstitial Session</u>  Presently –  Oral health and Systemic health linkages - including link between oral health and diabetes and cardiac disease; epidemiology of disease and bacterial prophylaxis  Behavioral and habitual factors affecting patient and oral health*  Collaborating in the care of patients' oral and systemic health (e.g. anticoagulation, bacterial prophylaxis)*  <i>Lecture with Audience Response System</i>  <i>Smiles for Life Module 1</i> (condensed)</p> <p>Dental pathophysiology (caries, periodontitis, gingivitis) and identify common oral lesions (cancer, tori, etc) including when to biopsy suspicious lesions*  Explaining both surgical and medical approaches to disease management*  <i>Lecture with Audience Response System</i>  <i>Smiles for Life Module 3</i> (condensed)</p> <p>Pediatric oral health</p> <ol style="list-style-type: none"> <li>1. Assessing history of risk factors, fluoride exposure, brushing habits, and last dental visit</li> <li>2. Examining child using knee to knee positioning</li> <li>3. Advising caretaker about caries prevention including oral hygiene habits*</li> <li>4. Referring pediatric patients for prevention and disease management</li> </ol> <i>Case-based discussion</i> <i>Smiles for Life Module 2</i> (condensed), <i>Smiles for Life Module 6</i> (condensed) <p>Oral urgent care  Identify common dental emergencies and how you as the clinician would triage and treat the emergency, as measured on the interclerkship post test, including:</p> <ol style="list-style-type: none"> <li>1. History taking</li> <li>2. Primary tooth considerations</li> <li>3. Secondary tooth considerations</li> <li>4. Pain management</li> <li>5. Infection management</li> </ol> <i>Case-based discussion</i> <i>Smiles for Life Module 4</i> (condensed) <p>Fluoride varnish</p>

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	<ol style="list-style-type: none"> <li>1. Learn indications, risks, benefits of administration</li> <li>2. Demonstrate how to apply fluoride varnish, through simulation, on another student.</li> </ol> <p><i>Short lecture; hands-on practice</i>  <i>Smiles for Life Module 7 (condensed)</i></p> <p>Geriatric issues  Appreciate geriatric oral health issues including:</p> <ol style="list-style-type: none"> <li>1. Root caries</li> <li>2. Hygiene challenges including tips for caregivers</li> <li>3. Dentures</li> <li>4. Insurance issues</li> <li>5. Medications and impact on oral health*</li> </ol> <p><i>Case-based discussion</i>  <i>Smiles for Life Module 8 (condensed, case format)</i></p> <p>Pregnancy and Oral Health:  Caries prevention for offspring, periodontitis, and pregnancy outcomes; safety of dental treatment in pregnancy -<i>Smiles for Life (SFL) Module 5 Pregnancy and Oral Health (condensed, case format)</i></p> <p><u>Geriatric Session</u>  Try to move geriatric oral health here</p> <p><u>Physical Disabilities</u>  Added oral health component 2010 as optional module</p> <ol style="list-style-type: none"> <li>1. Appreciate the importance of oral health in patients with disabilities</li> <li>2. Understand why disparities of oral disease exist in patients with disabilities</li> <li>3. Utilize the same basic strategies for oral care as patients without disabilities</li> <li>4. Incorporate a few pearls for examining some patients with disabilities</li> <li>5. Know what to look for in a dentist who treats special needs patients well</li> <li>6. Counsel patients about what to expect at the dentist</li> </ol> <p><u>Domestic Violence Session</u>  3 slides on oral injuries as a red flag for inquiring about domestic violence, physical abuse; included information on treatment options for underserved</p>



## UMMS ORAL HEALTH “SPIRAL” CURRICULUM

### Foundations of Medicine Year 4

Course	Topic/Format
Elective	<p>Oral Health elective – student works with local oral health offices, agencies, out reach workers and state DPH officials for 2-4 weeks on the following objectives:</p> <ol style="list-style-type: none"> <li>1. Appreciate the significance of oral disease on overall health in Worcester and Massachusetts across the life cycle</li> <li>2. Have the skills to take a risk history for oral disease, counsel about oral health promotion, make appropriate referrals</li> <li>3. Be aware of local oral health resources for people of all ages and with various medical issues</li> <li>4. Learn specific procedural skills such as fluoride varnish and possibly other oral interventions including regional oral anesthetic blocks</li> <li>5. Team approach to oral care including how hygienists, oral surgeons, physicians can work together on issues like cleft lip and palate, caries prevention and special needs patients</li> </ol> <p>Student reviews all <i>8 Modules of Smiles for Life</i></p>

## UMMS ORAL HEALTH “SPIRAL” CURRICULUM

Course	Topic/Format
Pharm Longitudinal Curriculum <sup>#</sup>	<p>Oral flora Antibiotics – fluoride, chlorhexidine, xylitol, metronidazole, penicillin Impact of common medications on oral disease</p>

## UMMS ORAL HEALTH “SPIRAL” CURRICULUM

Evaluation	Topic/Format
Longitudinal Curriculum	<p>End of Year Survey each year – 1 question: <i>How well do you feel that your medical school trained you to address oral/dental health topics?</i> 5 point likert answer (based on the AAMC Graduation Questionnaire question on oral health education)</p>

## UMMS ORAL HEALTH “SPIRAL” CURRICULUM

<b>On-going</b>	
<b>Opportunity</b>	<b>Topic</b>
Oral Health Interest Group	2 large group talks per year on oral public health topics and patient experiences e.g. global oral health efforts including cleft lip and palate clinics; geriatric oral health; systemic oral health linkages; fluoride varnish training Service Learning – teaching oral health topics at local free clinics Teddy Bear Clinic – handing out toothbrushes, educating parents and children about hygiene
<b>Other</b>	<b>Topic</b>
Albert Schweitzer Fellow 2009-10	Focus on Service Learning – teaching oral health topics at local free clinics, churches, immigrant groups Engaged Quinsigamond Dental Hygiene School in attending free clinics