

Dentistry_6x: Fundamentals of Cariology			
Contents	Video (5-7 min)	Learning objectives	Instructor/Speaker
Introduction			
0.1 Course introduction	V0. Introduction to Fundamentals of Cariology		Prof. Ollie YU
Week 1 Fundamentals of Cariology			
1.1 Biochemistry and histopathology of dental caries	V1.1.1 Composition and structure of teeth	<ul style="list-style-type: none"> Describe normal composition and structure of dental hard tissues and pulp 	Prof. Gustavo MOLINA
	V1.1.2 Demineralisation and remineralisation	<ul style="list-style-type: none"> Discuss dynamic processes of demineralisation and remineralisation involved in maintaining a state of health 	Prof. Gustavo MOLINA
	V1.1.3 Histopathology of dental caries	<ul style="list-style-type: none"> Describe histopathological changes and host response in enamel caries and dentine caries 	Prof. Gustavo MOLINA
1.2 Aetiology of dental caries	V1.2.1 Causative factors of dental caries	<ul style="list-style-type: none"> Describe the causative factors of dental caries 	Dr. Amy WONG
	V1.2.2 Factors associated with dental caries	<ul style="list-style-type: none"> Understand the role of environmental factors, drugs, and systemic diseases related to caries 	Dr. Amy WONG
	V1.2.3 Diet and dental caries	<ul style="list-style-type: none"> Explain the impact of various diets, frequency, amount etc. of cariogenic carbohydrates on caries incidence Understand the effect of sugar substitutes / uncariogenic sweeteners in dental caries development 	Dr. Amy WONG
1.3 Microbiology of dental caries	V1.3.1 Microbiology of dental caries-Overview	<ul style="list-style-type: none"> Describe the process of dental biofilm formation 	Dr. Peter TSANG
	V1.3.2 Caries microbiology	<ul style="list-style-type: none"> Identify the composition of dental plaque biofilm. List the major cariogenic bacteria 	Dr. Peter TSANG
	V1.3.3 Role of dental plaque in caries development	<ul style="list-style-type: none"> Describe the role of biofilm in caries development 	Dr. Peter TSANG

1.4 Saliva and Caries	V1.4.1 Saliva and oral health	<ul style="list-style-type: none"> List the major components of saliva. Describe the biochemical events such as buffering properties, effects of saturation in saliva 	Dr. Bonnie CHIU
	V1.4.2 Saliva and dental caries	<ul style="list-style-type: none"> Understand the role of saliva in caries development 	Dr. Bonnie CHIU
	V1.4.3 Salivary tests	<ul style="list-style-type: none"> Assess caries risk with saliva test 	Dr. Bonnie CHIU
Week 2 Caries Diagnosis and Risk Assessment			
2.1 Classification and index of dental caries	V2.1.1 How to classify dental caries	<ul style="list-style-type: none"> Describe the clinical features of active/arrested coronal caries and root caries 	Prof. Ollie YU
	V2.1.2 Caries classification system	<ul style="list-style-type: none"> Classify caries with different caries classification system 	Prof. Ollie YU
2.2 Detecting techniques of dental caries	V2.2.1 Clinical feature of dental caries	<ul style="list-style-type: none"> Understand the physical and biological changes in the structure of dental hard tissues as related to detection, assessment, and diagnosis of caries 	Prof. Ollie YU
	V2.2.2 Visual detection of dental caries	<ul style="list-style-type: none"> Identify caries with visual approaches as related to detection, assessment, and diagnosis of caries 	Prof. Ollie YU
	V2.2.3 Radiograph and light-based approaches	<ul style="list-style-type: none"> Interpret findings from images generated from radiographic or light-based caries diagnostic aids 	Prof. Ollie YU
2.3 Caries risk assessment	V2.3.1 Caries risk assessment -Overview	<ul style="list-style-type: none"> Define caries risk assessment and understand its role in caries management 	Prof. André RITTER
	V2.3.2 Caries risk and protective factors	<ul style="list-style-type: none"> List the risk indicators, risk factors, and protective factors associated with dental caries 	Prof. André RITTER

	V2.3.3 Categories, Instruments and Forms	<ul style="list-style-type: none"> Understand various categories, instruments, and forms in the field of caries management 	Prof. André RITTER
	V2.3.4 Caries Management by Risk Assessment (CAMBRA)	<ul style="list-style-type: none"> Understand risk factor categories and how to perform caries risk assessment for caries management 	Prof. John D.B. FEATHERSTONE
2.4 ICDAS & ICCMS	V2.4.1 International Caries Detection and Assessment System (ICDAS)	<ul style="list-style-type: none"> Classify dental caries using ICDAS 	Prof. Andrea Ferreira ZANDONA
	V2.4.2 Caries diagnosis with ICDAS/ICCMS	<ul style="list-style-type: none"> Diagnose Caries with ICDAS/ICCMS 	Prof. Andrea Ferreira ZANDONA
	V2.4.3 The ICCMS Dental Caries Management Plan	<ul style="list-style-type: none"> Plan dental caries management with the ICCMS 	Prof. Andrea Ferreira ZANDONA

Week 3 Management of dental caries			
3.1 Medical model for caries management	V3.1.1 Historical background about cariology	<ul style="list-style-type: none"> Describe the concept evolution from “Extension for Prevention” to “Prevention of Extension” 	Prof. Hamdi Hosni HAMAMA
	V3.1.2 Medical model for caries management	<ul style="list-style-type: none"> Define medical model for caries management 	Prof. Tammy Duangporn Duangthip
	V3.1.3 Oral health education	<ul style="list-style-type: none"> Educate patients concerning the aetiology of dental hard tissue diseases, dietary habits and other destructive habits relevant to oral health, and appropriate oral hygiene techniques 	Prof. Tammy Duangporn Duangthip
	V3.1.4 Caries management with evidence-based non-restorative methods	<ul style="list-style-type: none"> List common strategy in medical management of dental caries Make a caries management plan with the most appropriate evidence-based nonrestorative methods 	Prof Yasmi O Crystal
3.2 Non-restorative management of dental caries	V3.2.1 Plaque control	<ul style="list-style-type: none"> List common mechanical and chemical approach for plaque control 	Prof. Ollie YU
	V3.2.2 Fluoride and calcium based agents	<ul style="list-style-type: none"> Describe the use of fluoride and calcium-base products in caries control 	Prof. Ollie YU

3.3 Restorative management of dental caries	V3.3.1 Indication for restorative treatment of dental caries	<ul style="list-style-type: none"> Select the appropriate restorative treatment option based on the best available evidence and the patient's caries risk 	Dr. Gustavo MOLINA
	V3.3.2 Limitations of restorative management	<ul style="list-style-type: none"> Understand the consequences and outcomes of restorative management 	Dr. Gustavo MOLINA
	V3.3.3 Contemporary restorative materials	<ul style="list-style-type: none"> List the restorative materials for caries management 	Dr. Gustavo MOLINA
	V3.3.4 Contemporary restorative techniques	<ul style="list-style-type: none"> Describe the procedure of direct/ indirect restoration 	Dr. Gustavo MOLINA
	V3.3.5 Chemomechanical caries excavation methods	<ul style="list-style-type: none"> Classification, mechanism of actions, benefits, disadvantages, etc of chemomechanical caries removal 	Prof. Hamdi Hosni HAMAMA

Week 4 Evidence-based Practice for Caries Management

4.1 Dental public health related to cariology	V4.1.1 Epidemiology of dental caries	<ul style="list-style-type: none"> Understand the basics of epidemiology Understand the descriptive epidemiology of caries in relation to variables such as age, general health, and socioeconomic status 	Prof. Tammy Duangporn Duangthip
	V4.1.2 Indices for dental caries	<ul style="list-style-type: none"> Record caries and other dental hard tissue disorders using appropriate indices at different disease levels in a public health setting 	Prof. Tammy Duangporn Duangthip
	V4.1.3 Caries prevention measures for population & Oral health advocacy and promotion	<ul style="list-style-type: none"> Understand oral health advocacy, promotion, and prevention for populations as part of general health promotion 	Prof. Tammy Duangporn Duangthip
4.2 Cariology research	V4.2.1 Cariology research	<ul style="list-style-type: none"> Understand methodology and limitations of clinical research on cariology, including study design, sampling, bias, and statistics on laboratory and clinical studies 	Prof. Tammy Duangporn Duangthip
	V4.2.2 Clinical research in cariology	<ul style="list-style-type: none"> Describe the application of epidemiological methods in dental public health 	Prof. Tammy Duangporn Duangthip

	V4.2.3 Demin-remin model	<ul style="list-style-type: none"> List the common demineralisation/remineralisation model for caries research 	Prof. Ollie YU
4.3 Initiatives for caries management	V4.3.1 Dental lasers and photonic technology for caries management	<ul style="list-style-type: none"> Describe the application of lasers in caries management 	Dr. Kenneth LUK
	V4.3.2 Antimicrobial peptides for caries management	<ul style="list-style-type: none"> List the applications of antimicrobial peptides in caries management 	Prof. Nickolas S. JAKUBOVICS
	V4.3.3 Bioactive materials for caries management	<ul style="list-style-type: none"> Describe the application of bioactive glass in caries management 	Prof. Chun-Hung CHU
	V4.3.4 Nanomaterials for caries management	<ul style="list-style-type: none"> List the nanomaterials used in caries management 	Dr Iris Xiaoxue YIN
Conclusion Quiz			
Module 1	Conclusion Quiz Questions (Graded Assessment)		
Module 2	Conclusion Quiz Questions (Graded Assessment)		
Module 3	Conclusion Quiz Questions (Graded Assessment)		
Module 4	Conclusion Quiz Questions (Graded Assessment)		