

SCHOOL OF DENTISTRY
Course Information

August 28, 2002

1. **Course identification**

Name of course:	Operative Dentistry IV: Current concepts in Operative Dentistry: An evidence-based approach.	
Department:	Restorative Sciences	
Division:	Operative Dentistry	
Number:	Dent 6806	
Credits:	2 credits for 3 rd year	
Quarter and year:	Fall 2002	
Hours per week:	Lectures: 2	
Hours total:	Lectures: 21	
Course director:	Dr. Omar Zidan	zidano@umn.edu
Office address:	8-450 Moos Tower	
Phone:	612-626-0604	
Office hours:	By appointment	
Participating faculty:	Dr. Gary Hildebrandt	Gary.H.Hildebrandt-1@umn.edu
	Dr. Jorge Perdigo	perdi001@umn.edu
	Ingrid Benda	benda002@umn.edu
	Richard Ruth	ruthx008@umn.edu
Participating staff:		

2. **Course policy and grading**

Attendance: Required
E-mail to Dr. Zidan explaining the reason for the absence and how you would arrange for the evaluation of the session you will not attend.

Resources: Material presented in the class
Dental Journals: refereed
Internet: Medline / PubMed, Cochrane Library, refereed journals, e-journals, others.
General data bases, search engines: AltaVista, Excite, Infoseek, Lycos, others.
Non- refereed magazines.
Human resources: faculty, dentists, students, lab technicians, company representatives, patients, others

Assignments: The class will be divided into 9 sections, each section will be assigned a clinical topic. The assignment has two components didactic and applied
Position Paper: A clinical question is posed to each group. The section will answer the clinical question following an evidence based approach, using the resources outlined above. The section will search and evaluate different database of knowledge and prepare a position paper about their findings regarding the assigned clinical question. The paper should be delivered to Ingrid Benda at MoosT 8-450 before the dead line, check the dead line on the schedule. The paper will be published on the home page of the course @
http://www1.umn.edu/dental/courses/dent_6806fall02/index.html
all students are required to attend all the lectures and read all the position papers. You must publish at least one comment after each lecture, it should reflect your position, understanding or a question related to the topic of the lecture. You must publish also at least one comment reflecting your position on the published paper and /or raise a question to the section. The lecturer and the section will try to address the comments and questions during the presentation. ONLY VALID COMMENTS/QUESTIONS REFLECTING A GOOD UNDERSTANDING OF THE PUBLISHED PAPER WILL COUNT TOWARD YOUR FINAL GRADE.
Each section will present and discuss their position paper and their clinical case to the class on the date scheduled for their presentation.
The section presentation will occur in the lecture room 2-530. The presentation needs to contain the following elements. The clinical question, the strategy used to collect the data, an evidence based answer to the clinical question Your answer should reflect the state of knowledge gained by the section in relation to the clinical topic. A clinical case presentation related to the clinical question reflecting a clinical protocol. Dr. Zidan will work with each section for the clinical case. The lecture hall is equipped for multimedia presentation; computer projector, Ethernet connection, slide projectors, overheads. for help with audio-visuals contact the division secretary Ingrid Benda at MoosT 8-450, phone: 612 625 8486, or email: benda002@umn.edu. She will assist you with your needs. Also you can contact audio-visual @ 625 3201 to show you how to use the equipments. The intersection and intrasection evaluation form are an integral part of the course. Each student will receive an evaluation booklet containing the evaluation forms. Each student should evaluate his/her section work on the intra-section critique form; this form should be completed at the day of your section presentation.

Each student should evaluate all the papers and all the presentations of the other sections on the inter-section critique forms, this should be completed at the end of each presentation. The booklet will be available at the beginning of the session and they will be collected at the end of each session. **EACH BOOK IS CONFIDENTIAL , DO NOT TAKE A BOOK WHICH IS NOT YOURS.**

These critique form are considered a part of the course and are required to get a final grade, if your forms are missing you will get an I grade.

Calculation to the final grade:

The final grade will be calculated based on:

- (1) The scores of the intra-section critique forms (60%). Each student will be assigned one of three scores based on his/her percentile ranking within a percentile plot of the section: the upper percentile 60 points, lower percentile 40 points, mid percentile 50 points.
- (2) The scores of the intersection critique forms (20%). A cumulative score will be calculated from both scores of the paper, the presentation and the clinical case. Excellent: 3 points, good: 2 points and fair: 1point. Based on the scores the papers will be ranked 1st rank through 9th rank. 1st: 20 points, 2nd rank 18 points, 3rd 17 points, 4th 16 points, 5th 15 points, 6th 14 points, 7th 13 points, 8th 12 points, 9th 11 points.
- (3) The student comments on the lectures and section papers (10%).
- (4) Faculty score (10%) based on the ranking of the papers and presentations.
- (5) The final grade will be assigned based on the percentile plot of the class A-F

Grading system:

Policy regarding I grades:

Students who fail will receive an "I" grade will repeat the course by preparing a paper and a clinical case with a new assignment. The paper must be completed satisfactorily by the date set by the course director. Satisfactory resolution of the "I" grade will result in receiving the lowest passing grade which is a "D".

Feedback:

Statistical data related to the groups and to the individual performance

3. **Purpose of course:** Students will be learning about the current concepts in Operative Dentistry. The main focus of the course will be on contemporary aspects of operative dentistry. The disease dental caries and its symptom the carious lesion will be discussed. Emphasis will be on the diagnosis, treatment decision using an evidence-based approach and outcome assessment of the different treatments. Lectures will be presented by the faculty of Operative Dentistry to cover contemporary treatment modalities such as porcelain veneers, tooth whitening, cervical lesions, CAD/CAM, direct and indirect composites, partial porcelain, build-ups and biocompatibility. Those modalities are presented from the point of view of the individual faculty. As you are in an academic setting, you can expect hearing conflicting views this should not confuse you, on the contrary it should enrich your experience. In addition to the material presented in the lectures students are expected to learn how to answer clinical questions based on an evidence-based approach, by searching, reading and validating the scientific and unscientific literature pertaining to the clinical question. Students are expected to evaluate both the content and the quality of knowledge related to the various aspect of each topic. Students are expected to articulate their understanding in the written paper reflecting the database of knowledge and presenting a position for the section. Students within each section are expected to be able to present and discuss their findings with the class. Students are expected to show how to integrate their findings in a clinical protocol and in a clinical case presentation. The experience you gain from this course should be reflected on your daily clinical activities, decisions, and judgments.

4. **Competencies:**

Students will be able to:

1. Discuss evidence-based dentistry and its impact on decision making
2. Discuss the paradigm shift in Operative Dentistry
3. To learn the steps involved in practicing evidence-based health care .
5. To learn what types of evidence are available in major health sciences information resources such as PubMed/Medline, and the Cochrane Library, dental literature .
6. To learn how to access and search the major information resources for relevant clinical evidence
7. Discuss the concept of dental caries the disease, and dental caries the lesion.
7. Define caries risk assessment and explain its clinical rationale and application
8. Identify specific risk factors in a patient's clinical data base
9. Explain how caries risk status is determined and how it affects treatment planning decisions and the level of caries control efforts employed
10. Identify the various strategies available for controlling dental caries- including indications, contraindications, dosage, available products.
11. Describe how to integrate caries risk assessment, caries diagnostic testing, and caries control measures into the developing treatment plan of high risk patients
12. Evaluate the tools and methods used to diagnose the incipient caries lesions
13. Discuss the options for the management of the incipient caries lesions
14. Discuss advances to develop future robust tools for caries diagnosis
15. Describe the treatment options for the mild to moderate phase of dental caries
16. Discuss the principles for designing conventional vs. bonded restorations
17. Describe the lesion specific bonded composite restorations
18. Describe the treatment choices for the moderate to severe phase of dental caries
19. Discuss the biological and bio-mechanical aspects of the bonded restorations.
20. Discuss the concept and application of bonding in pulp therapy
21. Discuss bonding and its effect on tooth strength

22	Classify cements and rationalize the choice based on properties
23	Discuss retention of cemented vs. bonded castings
24	Describe the development of the direct posterior composite restoration
25	Review the variables in the technique which will affect the outcome of posterior composites.
26	Discuss the indirect composite restoration
27	Discuss modern esthetic approach for the restoration of the moderate/severe phase
28	Describe the use of castable glass and its use
29	Describe CAD/CAM - CEREC restorations
30	Describe the relation between teeth and tissues during a smile
31	Discuss anterior gingival esthetics
32	Discuss primary elements of esthetics form/colour/texture
33	Describe the concepts of porcelain veneers
34	Describe indications of porcelain veneers
35	Describe the clinical steps for a porcelain veneer
36	Describe the preparation of a porcelain veneer
37	Describe Impression/ provision/shade selection for porcelain veneer
38	Describe Tryin and bonding procedures for porcelain veneers
39	Discuss clinical aspects and common errors with porcelain veneers
40	Discuss history of in-office bleaching
41	Discuss history of at-home bleaching
42	Discuss types of discoloration of teeth
43	Describe clinical protocol for at-home bleaching
44	Describe in-office bleaching and over the counter materials
45	Describe the classification of cervical lesions
46	Describe etiology of cervical lesions
47	Describe glass-ionomer as restoration of cervical lesions
48	Describe composite as a restoration of cervical lesions
49	Describe a methods of isolations of cervical lesions
50	Describe the preparations for cervical lesions
51	Describe etiology and methods of controlling pain of dentin origin
52	Discuss of treatment decisions for built-up
53	Describe current bonding agents and their use
54	Discuss how to choose a material for an esthetic option

5.	<u>Schedule</u>	Time:	Tuesdays 11:15-12:05	Room: MoosT 2-520	
			Thursday 7:45-8:35	Room: MoosT 2-530	
		*extra lecture	Thursday Sept 5 8:40-9:30	Room : MoosT 2-530	
1	Thursday Sept 5	Introduction to the course, format, expectations, sections assignment, topic assignment. Historical development of Operative Dentistry and the dental caries. The impact of contemporary Operative Dentistry on modern dental practice			Zidan
2	Thursday Sept 5*	An introduction to evidence-based health care. Different data base resources. A systematic approach to formulate your questions and navigate the literature.			Zidan
3	Thursday Sept 12	The clinical symptom of the disease Dental Caries “ The carious lesion”: A contemporary approach for diagnosis and management			Zidan
4	Tuesday Sept 17	Porcelain Veneers: Smile design . Technical aspects			Zidan
5	Thursday Sept 19	Porcelain Veneers: Technical aspects and clinical aspects			Zidan
6	Tuesday Sept 24	Tooth whitening			Zidan
7	Thursday Sept 26	Cervical lesions: etiology and management			Zidan
8	Thursday Oct 1	Direct composites			Zidan
9	Thursday Oct 3	Indirect composites and partial porcelain			Zidan
10	Thursday	The disease Dental Caries: An evidence-based approach			Hildebrandt

	Oct 10		
11	Tuesday Oct 15	CAD/CAM : The CEREC restorations	Zidan
12	Thursday Oct 17	Build-ups materials and techniques	Perdigao
13	Tuesday Oct 22	<u>Dental Caries: The incipient carious lesion:</u> (Paper due : October 14 2002) Definition diagnosis protocol: pits and fissures, smooth surface, evaluation of diagnostic methods sensitivity specificity, hidden caries, tx protocols: no tx, watch, remineralization, sealants, air abrasion, invasive treatment others, evidence-based tx options, outcome assessment Case presentation	Section 1
14	Thursday Oct 24	<u>Dental Caries: The mild to moderate carious lesion .The lesion specific approach:</u> (Paper due : October 14 2002) Definition, Diagnostic protocol, evaluation of diagnostic data, tx protocols, risk of tx vs. risk of no treatment, lesion specific composites, tunnel preparations, ultrasonic preparation, amalgam, others tx options, evidence-based tx options, outcome assessment Case presentation (s)	Section 2
15	Tuesday Oct 29	<u>Cerival Lesion:</u> (Paper due : October 21 2002) How would you describe it, etiology, diagnosis, manifestations, Intervention, comparisons, outcome assessment case presentation (s)	Section 3
16	Thursday Oct31	<u>Dental Caries: The moderate severe dental lesion .The Composite Restoration:</u> (Paper due : October 21 2002) Definition, Diagnostic protocol, evaluation of diagnostic data, tx protocols The composite restoration. : Development and formulation, protocol for selection and use. Dentin Bonding Development and formulation Protocol for selection and use Dental pulp reaction to restorative procedure (biocompatibility: toxicity vs. infection) Evidence based data on the longevity and clinical performance. Outcome assessment others Case presentation	Section 4
17	Tuesday Nov 5	<u>Dental Caries: The moderate severe dental lesion .The Indirect Esthetic Restorations:</u> (Paper due : October 28 2002) Definition, Diagnostic protocol, evaluation of diagnostic data, tx protocols The partial porcelain restoration and the Cerec restoration: Development and formulation, protocol for selection and use., evidence based data and treatment options, outcome assessment others Case presentation	Section 5
18	Thursday Nov 7	<u>Build up: A foundation restoration to receive an indirect restoration:</u> (Paper due : October 28 2002) Definition, diagnosis based on amount of tooth structure lost / location in the arch, etiology, which intervention, comparison between interventions, outcome Case presentation	Section 6
19	Tuesday Nov 19	<u>The Disease Dental Caries: Risk Assessment/ Strategies of disease control</u> (paper due: (Paper due : November 11 2002) Definition and etiology- predisposing factors and clinical manifestations- Diagnosis and Risk assessment - diagnostic testing (methodology and validity): bacterial mutans Streptococci and lactobacilli types commercial assays and laboratory – Salivary flow. Others Protocol for disease control Bacterial: role of chlorhexidine-Natural products-Xylitol Fluorides formulation and methods of delivery Diet analysis and counseling saliva substitutes other Case presentation	Section 7
20	Tuesday Nov 26	<u>Esthetic options: Veneers:</u> (Paper due : November 18 2002) Anatomy of the smile. Diagnostic protocol and evaluation of diagnostic data : Analysis of color, contour, shape and occlusion. Gingival esthetics it's effect on esthetics outcome Dentist patient communication: Reality and perception. Dentist lab communication communication of color contour and material selection., others	Section 8

Case presentation

- 21 Tuesday **Esthetic Options : Bleaching** Section 9
 Dec 3 **(Paper due : November 25 2002)**
 Definition color of teeth. Diagnostic protocol and evaluation of diagnostic data. Tx protocol. Material and methods available. Protocol for selection. Biocompatibility and adverse reaction, Case presentation

Notetaking: Lect 1&2 (sect1), Lect 3 (sect 2), Lect 4&5 (sec8), Lect 6 (sec 9), Lect 7 (sect 3), Lect 8 (sect 4) Lect 9 (sect5), Lect 10 (sect 7), Lect 11 (sect 5), Lect 12 (sect 6).

6. Biosketches

Dr. Omar Zidan received his B.D.S. and Ph.D. from Egypt and Denmark, he attended a GPR residency and received an M.S. in Operative Dentistry from the University of Minnesota. Presently he is Associate Professor in the Division of Operative Dentistry. His research and publications focus on the concepts and clinical application of resin bonding for restorative dentistry. His teaching focus on modernizing the teaching of Operative Dentistry and how to integrate new concepts and evidence based in the curriculum and in clinical practice. He is involved with clinical practice at the U of M faculty practice

Dr. Gary Hildebrandt received his D.D.S. in 1981 and his M.S. in Restorative Dentistry in 1990 from the University of Michigan, where he served as an assistant professor from 1990-1996. In September of 1996 he joined the University of Minnesota. Currently he is a Clinical Dental Specialist in the Division of Operative Dentistry, Department of Restorative Sciences He has been continuously involved in the clinical practice of Dentistry since 1981 and remains involved through part-time extramural practice. Dr. Hildebrandt's research emphasis has been in the area of caries risk assessment, management of caries active patients, and suppression of the microorganisms associated with dental caries.

Dr. Jorge Perdigao received his DMD from the University of Lisbon, Portugal in 1985, his MS in Operative Dentistry from the University of Iowa in 1992, his PhD in dental materials from the Catholic University of Leuven, Belgium in 1995. He taught at the University of Coimbra, Portugal. He served as Associate Professor at the University of North Carolina at Chapel Hill. Presently he is Associate Professor and Director of the Division of Operative Dentistry at the University of Minnesota. Dr. Perdigao research focus in the area of dentin bonding and composites. He serves on the editorial board of many dental journals and he lectures extensively world wide

7. Section Assignment:

Section1	Section2	Section3	Section4	Section5
Ascherman,Dylan John	Dylla,Russell Allen	Gustafson,Derek L	Huber,Roxane Marie	Knutson,Brett Arthur
Barsness,Brian D	Eichmeyer,Lucas	Guy,Stephanie Jean	Indieke,Aaron Daniel	Knutzen,Benjamin
Berg,Matthew Douglas	Andrew	Guy,Stephanie Jean	Imdieke,Aaron Daniel	Thomas
Borodkin,Adena Fern	Fenger,Benjamin Scott	Haemig,Karl Matthew	Inglis,Jessica M	Laberge,Jennifer Jo
Campbell,Joshua D	Forster,Adam Lee	Hallie,Erick Michael	Jahimiak,Megan	Lantz,Katie Marie
Capp,Patrick J	Francis,Ryan Thomas	Hanel,Travis Ammen	Suzanne	Laszcwski,Sarah Jean
Carlson,Carrie Ann	Gannon,Erin Christine	Healy,James Michael	Johnson,Aaron Paul	Lobaugh,Kara Anne
Como,Sarah Ann	Gilmer,David Michael	Hedin,Gary James	Johnson,Bryan Curtis	LoCascio,Polly Jo
Croft,Devin Lee	Graber,Steven Louis	Hedstrom,Alyssa Anne	Johnson,Jason D	Courtney
Deragisch,Brent Dean	Gross,Jeremy William	Lindquist	Kattleman,Kellee Nicole	Manke,William Charles
		Henrickson,Michael	Knaff,Eric Matthew	Matthes,Jon Frederick
		Ryan		
Section6	Section7	Section8	Section9	
McCartney,Melissa	Morrison,Bradley	Reynolds,Kelly Ann	Tietz,Ryan William	
Dorothy	Christopher			
McDonald,Brian	Nelson,Michael James	Sawyer,Stephen M	Vierегge,Brian Lee	
Franklin	Nichols-Johnson,Heidi			
Mehta,Sachin R	Michelle	Sigaty,James Lambert	Vober,Emily	
Miller,Krista Monique	Nord,Alisa Marie	Smith,Julie Elizabeth	Wangen,Chris Carol	
Miller,Todd Anthony	Olson,Thekla	Spangler,Leslie Anne	Wehrman,Jeremy P	
Miner,Stephanie Lynn	Kirschbaum	Spieker,Craig Dean	Welter,Jolene Louise	
Miskovich,Peter John	Osborn,Timothy Marx	Swenson,Brent Adam	Wood,Monique Nichole	
Moore,Stephen M	Owen,Brandon A	Tadysak,Thomas Erwin	Zhan,Phillip H	
Mork,Nathan P	Pedersen,Nathan R	Thiele,Ann Marie		
	Raykowski,Grant			
	Edward			

8. **Paper Assignment:**
 - Each student should identify his/her section, their clinical topic assignment and the date of their presentation.
 - The paper of each section is due in its final format on Monday before 12:00pm one week before the section presentation date, verify the dates on the schedule so that the other section can read it and post their comments. This is a collective responsibility of the section, if the paper is delayed this might affect the final grade
 -The paper should be delivered to Ingrid Benda in the Operative Dentistry office Moos Tower 8-450. The paper will be published to the class on the home page of the course by the next day Tuesday @:
http://www1.umn.edu/dental/courses/dent_6806fall02/index.html
 -You must read all 8 papers and attend all the sections presentations. All students must evaluate all the papers using the intra section and the inter sections forms .
9. **Paper Format:**
Plan: Formulation of plan , defining the clinical questions, strategy for search and assignment of roles
 A well build question(s) should include 4 parts: PICO Sackett et.al 1997
Patient problem: Primary problem/disease, co-existing conditions, diagnosis and relevant aspect to the diagnosis
Intervention: what you want to do to the patient
Comparison: what are the main alternatives to compare to your intervention, there is no alternatives
Outcome Assessment: what you hope to accomplish
 - short term and/or long term
 - define the data you want to collect
 - define the tools you will use
 - define how you will interpret the data
 Each paper should contain the following elements
1. Informative title: representing the assigned clinical topic
2. Plan
3. Introduction:
4. Review of the literature: with detailed references and source of information
5. Position statement(s) , the position of your section regarding the clinical topic
Clinical protocol based on your evidence based approach
 - how you will incorporate the findings in your clinical setting : your daily practice
 - would it be different from the way you practiced during your training at school?
 - what you would suggest?
 - is there any risk factor?s
10. **Case presentation:** Each section should apply their findings to the clinical protocol and to the clinical case. The case needs to be documented in a standard format using intra oral photography, contact Dr. Zidan for your clinical case.
ALL THE MEMBERS OF THE GROUP SHOULD TAKE A ROLE IN THE PRESENTATION
11. **Paper and course Evaluation:**
 Each student will receive an evaluation booklet
 Inter-sections: Each student must evaluate 8 papers and 8 presentations (do not evaluate your section).
 Intra-sections: Each student must evaluate the work of his/her section (do not evaluate yourself)
 Evaluate the course using the course evaluation forms