Consortium of Operative Dentistry Educators

(CODE)



REGIONAL REPORTS FOR FALL 2004

http://netserv.unmc.edu/code/codeFrame/html

CODE National Meeting for 2005

The meeting will be held Thursday, February 24, 2005 from 4:00 PM to 6:00 PM at the Fairmont Hotel in Chicago, Illinois. Our speaker's presentation this year is:

Ethics in the Dental Profession - Quo Vadis?

Synopsis: Ethical standards in the profession are under challenge from several quarters. The "cosmetic" bandwagon seems to have brought out the worst in some manufacturers of dental materials who are tempted to market heavily advertised, yet untested, materials targeted at expanding their share of the market, only to have the products fail; and the worst in some colleagues who promote themselves, and the weekend courses they have taken, as making them more qualified to carry out extensive, and sometimes unnecessary, full-mouth reconstruction with untested materials on patients who have not been given full disclosure. This presentation will discuss some of the issues involved and the role of academia in alerting students to the pitfalls of the path to quick riches.

Presenter: Richard J. Simmons, DDS, MS Associate Dean for Academic Affairs and Research Arizona School of Dentistry and Oral Health

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Consortium of Operative Dentistry Educators (CODE)

Forward - Larry D. Haisch, D.D.S. National Director

On February 19, 2004, CODE held a National/International meeting during the annual meeting of the Academy of Operative Dentistry in Chicago. Minutes of this meeting are located on page 2. Thank you to the Academy of Operative Dentistry for providing the time slot and space for the meeting.

Dr. Ivar Mjor presented a program entitled "**Microleakage and Recurrent Caries**" followed by questions and discussion. It was a timely and thought provoking presentation as would have been anticipated.

I had the privilege to attend the Region VI meeting at Louisiana State University. Another great meeting with good discussion and sharing of information. Thank you to all the folks there for the great hospitality.

The members of CODE must continue to spread the word about CODE and work to provide input to Licensure Boards on Restorative Dentistry. Continue to encourage/invite members of the Licensure examining boards to attend the Fall Regional meetings. Invite our colleagues in the Armed and Public Health Services to our meetings - both Regional and National.

Support of CODE by payment from the schools for annual dues is excellent, although not without follow-up efforts by the National office. The same can be said for the collection of the Fall Regional Reports - always a challenge but just part of the annual process.

The web site (<u>http://netserv.unmc.edu/code/codeFrame/html</u>) continues to be the location of "all you wish to know and then some" for CODE. Thanks to Dr. William Johnson (UNMC-COD) for continuing to be the webmaster and doing timely updates and enhancements. **NOTE**: Update your schools' directory via the active <u>"Please help update"</u> link in the main menu.

January 1, 2004, CODE officially changed its name from <u>Conference</u> of Operative Dentistry *Educators* to <u>Consortium</u> of Operative Dentistry Educators. The change was approved by the attendees at the Fall 2003 Regional CODE meetings.

I would like to thank all the Directors and the meeting hosts (Drs. Richard Kahn, Mark Belcher, Alan Ripps, Mary Ellen McLean, Richard Lichtenthal and Gary Crim), the Operative Section of ADEA and, especially, the general membership for helping to make CODE what it is and what it accomplishes. Will CODE become what it could be?

Minutes National CODE Meeting 02/19/04 Fairmont Hotel Chicago, IL

The meeting was called to order at 4:15 PM by Dr. Larry Haisch, National Director . Dr. Haisch made some general comments regarding the CODE web-site and once again encouraged CODE members to keep working with regional licensure boards. He gave information regarding the past year's Regional CODE meetings and applauded Dr. Scott Shaddy's (Creighton University-Region II) efforts to get a slot prep accepted for the Central Regional Boards.

Dr. Kevin Fraizer (Medical College of Georgia-Region VI) mentioned the name change for CODE - it is now officially the "Consortium of Operative Dental Educators" and went on to introduce the speaker for the evening, Dr. Ivan Mjor from the University of Florida.

Dr. Mjor spoke about "practice-based research." For the first time, NIDCR is recognizing the need for private practice-based research. Controlled clinical trials are good feasibility studies, but do not provide long term data. Also, because of specially trained dentists, assistants, patients with specific inclusion and exclusion criteria and unlimited time availability to place restorations, these trials are not representative of the real clinical situations. Therefore, practice-based research needs to be encouraged.

Dr. Mjor also spoke about secondary caries around composite restorations, mainly Class V restorations. He said more than 50% of composite restorations are removed due to the diagnosis of secondary decay and more than 50% of the time, this diagnosis is wrong. He showed several examples of Class V composite restorations with marginal stains that proved to be caries-free when removed.

The meeting was adjourned at 5:45 PM.

ORIGINS OF C.O.D.E (Consortium of Operative Dental Educators)

Project ACORDE (A Consortium of Restorative Dentistry Education)

The date usually cited as the starting point for the development of Project ACORDE is 1966. That year, in Miami, the Operative Dentistry Section of AADS formed a committee charged to plan for the cooperative development of teaching dental materials.

In July of 1971, the Dental Health Center, San Francisco, invited faculty from 14 dental schools to explore the feasibility of reaching consensus of a series of operative dental procedures. The outcome of the meeting suggested that it was feasible to achieve broad-based agreement on basic procedures: task analyses could be developed in which consensus could be reached on essential details of methods and instrumentation. The Project ACORDE committee was charged with the responsibility for coordinating curriculum development efforts on a national level in November of that year. Prominent in this project development were Bill Ferguson, David Grainger and Bob Wolcott.

The Broad Goals and Functions of this committee were:

- 1. To gain agreement among all participating dental schools on the teaching of operative dentistry functions and gain acceptance by all schools.
- 2. To produce materials which can be universally accepted and utilized for teaching dental students and expanded function auxiliaries.

During 1974, a 15 module package entitled <u>Restoration of Cavities with Amalgam and</u> <u>Tooth-colored Materials</u> was presented.

The preparation package entitled <u>Cavity Preparations for Amalgam and Tooth-colored</u> <u>Materials</u> became available for distribution in March of 1976.

Project ACORDE was found to have produced three major benefits for dental education:

- 1. It opened new channels of communication among dental educators.
- 2. It suggested uniform standards of quality for the performance of restorative skills.
- 3. It produced numerous lesson materials which were useful both for teaching students and as models of developers of other lessons.

The benefit, most frequently cited by dental school faculty, was communication. The primary example of the communication begun by Project ACORDE, which has lasted well beyond the initial project, is CODE (Consortium of Operative Dentistry Educators). CODE has as its goal, the continuation of meetings for the purpose of information exchange among teachers of operative dentistry. Regional CODE meetings are held annually with minutes of each session recorded and sent to the national director for distribution. This system is a direct spin-off of Project ACORDE.

The first annual session of CODE was held in 1974/75.

The Early Years (1974-1977)

As founding father of the concept, Robert B. Wolcott of UCLA assumed the role of national coordinator and appointed Frank J. Miranda of the University of Oklahoma as national secretary. A common agenda to be provided to all six regions was established at this time. The first regional meetings were held in the winter of 1974. During the first three years of operation, each region devised a system of rotation so that a different school hosted the regional meeting each year, thus providing a greater degree of motivation and bringing schools closer together in a spirit of fellowship and unity. Each region submitted suggestions for future agendas, thereby insuring a continued discussion of interesting and relevant topics. A collection of tests or a test bank was started in early 1976. This bank consisted of submitted written examination questions on specified topics that were complied and redistributed to all schools.

The Transition Years (1977-1980)

The first indication that the future of CODE was in jeopardy came in 1977, the first year that a national report could not be complied and distributed. As the result of the efforts of a committee chaired by Dr. Wolcott, the original concept was renewed in 1980. Its leadership had been transformed from the structure of a national coordinator and secretary to a standing subcommittee under the auspices and direction of the Section of Operative Dentistry of the AADS.

The Reaffirmation Years (1997 - 1998)

During the 1997 meetings of both the Operative Dentistry Section Executive Council and the Business meeting of the Section, interest was expressed about reorganizing CODE and aligning it more closely with the Section. During the following year, fact finding and discussions occurred to formulate a reorganization plan. The plan was submitted for public comment at the 1998 meeting of the Operative Dentistry Section Executive Council and the Business meeting of the Section. At the conclusion of the business meeting the reorganization plan was approved and implemented.

Reaffirmation of CODE official title (2003)

CODE changed its name from *Conference of Operative Dentistry Educators* to *Consortium of Operative Dentistry Educators* due to a ratification vote at the Fall 2003 Regional CODE meetings.

The Future of CODE

The official sponsorship by the Section of Operative Dentistry of ADEA (formerly ADDS) and the revised administrative structure of CODE are both designed to insure its continuance as a viable group. The original concepts, ideas and hopes for CODE remain unchanged and undiminished. Its philosophy continues to be based on the concept of dental educators talking with each other, working together, cooperating and standardizing, when applicable, their teaching efforts and generally socializing in ways to foster communication. There is every reason to believe that organizations such as CODE, and those developed in other fields of dentistry, will continue to crumble the barriers of provincialism and provide the profession with a fellowship that is truly national in scope.

National Coordinators/Directors

1974 - 1982	Robert B. Walcott (UCLA)
1982 - 1986	Thomas A Garmen (Georgia)
1986 - 1989	Frank Miranda (Oklahoma)
1989 - 1998	Marc Gale (Florida)
1998 - to present	Larry Haisch (Nebraska)

ORGANIZATION OPERATION

The Section of Operative Dentistry of the American Dental Education Association has "oversight" responsibility for sustaining and managing CODE.

- The national director will be appointed by the executive council for a threeyear term, renewable not to exceed two consecutive terms.
- The director will be selected from a list of one or more individuals nominated by the CODE Advisory Committee after input from the regions.
- The director will perform the functions and duties as set forth by the council.
- The director will be a voting member of the council who will be expected to attend regional CODE meetings and the annual meeting of the council and section.

A CODE Advisory Committee will assist the national director with his/her duties.

- A CODE Advisory Committee will consist of one member (regional director) from each of the six regions plus 1 or 2 at-large members.
- Each regional director is selected by their region. The at-large member(s) may be selected by the national director and/or the executive council.
- The terms are three years, renewable, not to exceed two consecutive terms.
- The national director serves as chair of the Advisory Committee.

The annual CODE Regional meetings will serve as the interim meeting of the section. Some section business may be conducted at each CODE Regional meeting as part of the National agenda.

Regional Directors:

- Will be a member of ADEA and the section of Operative Dentistry
- Will oversee the conduct and operation of CODE in their respective region while working in concert with the national director
- Will have communication media capabilities including e-mail with the capability of transmitting attachments
- Will Attend the region's meeting
- Ensure that meeting dates, host person and school are identified for the following year
- Do follow-up assist on dues "non-payment" by schools
- Ensure that reports of regional meetings are submitted <u>within 30 days</u> of meeting conclusion to the national director
- Ensure that individual school rosters (operative based) are current for the region
- Identify a contact person at each school
- Assist in determining the national agenda
- Other, as required

CODE ADVISORY COMMITTEE

(Revised 12-22-03)

<u>Region</u>		Regional Director	Phone / E-Mail	<u>Term</u> (term - 3yrs)	
I	Pacific	Dr. Edmond R Hewlett UCLA Los Angeles, CA	310-825-7097 eddyhedent@ucla.edu	2003-2005	
II	Midwest	Dr. R. Scott Shaddy Creighton University Omaha, NE	402-280-5226 shaddyr@creighton.edu	2003-2005	
===	South Midwest	Dr. Alan H. Ripps LSU New Orleans, LA	540-619-8548 aripps@lsuhsc.edu	2004-2006	
IV	Great Lakes	Dr. William Gray UWO London, Ontario, Canada	519-661-2111 william.gray@fmd.uwo.ca	2004-2006	
V	Northeast	Dr. Richard Lichtenthal Columbia University New York, NY	212-305-9898 rml1@columbia.edu	2005-2007	
VI	South	Dr. Kevin Frazier MCG Augusta, GA	706-721-2881 kfrazier@mail.mcg.edu	2005-2007	
II	At-Large	Dr. Poonam Jain SIU Alton, IL	618-474-7073 pjain@siu.edu	2005-2007	
11	National Director	Dr. Larry D. Haisch National Director UNMC-COD Lincoln, NE	402-472-1290 Ihaisch@unmc.edu	2005-2007	
II	Web Master	Dr. Bill W. Johnson UNMC-COD Lincoln, NE	402-472-9406 wwjohnson@unmc.edu		

Region I (Pacific) -11 ✓ Alberta - Canada ✓ Arizona ✓ British Columbia - Canada ✓ Loma Linda ✓ Nevada ✓ Oregon ✓ Pacific ✓ UCLA ✓ USC ✓ Washington	Region II (Midwest) - 10 ✓ Colorado ✓ Creighton ✓ Iowa ✓ Manitoba - Canada ✓ Marquette ✓ Minnesota ✓ UMKC ✓ Nebraska ✓ Saskatchewan - Canada ✓ Southern Illinois
Region III (South Midwest) - 7 ✓ Baylor ✓ Louisiana State ✓ Mississippi ✓ Oklahoma ✓ Tennessee ✓ UTHSC - San Antonio ✓ UTHSC - Houston	Region IV (Great Lakes) - 10 ✓ Case Western ✓ Detroit Mercy ✓ Illinois ✓ Indiana ✓ Michigan ✓ Ohio State Pittsburg ✓ ✓ SUNY - Buffalo ✓ West Virginia ✓ Western Ontario - Canada
Region V (Northeast) - 18 ✓ Boston ✓ Columbia ✓ Connecticut ✓ Dalhousie - Canada ✓ Harvard ✓ Howard Laval - Canada Laval - Canada ✓ Maryland ✓ McGill - Canada ✓ New Jersey ✓ NYU ✓ Pennsylvania ✓ SUNY - Stony Brook ✓ Temple ✓ Toronto - Canada ✓ US Naval Dental School	(South) - 11 ✓ Alabama ✓ Florida ✓ Georgia ✓ Kentucky ✓ Louisville ✓ Meharry ✓ North Carolina ✓ Nova Southeastern ✓ Puerto Rico ✓ South Carolina ✓ Virginia

Regions and Schools

The National Agenda for 2004 was established after review of the suggestions contained in the reports of the 2004 Fall Regional meetings and National CODE Meetings. Review of previous National Agendas (2000 - 2003) was completed to minimize redundancy. Thank you to the Regional CODE Directors and the membership

for making recommendations to establish the National Agenda. Each Region is encouraged to also have a Regional Agenda.

Each school attending the Regional Meetings is requested to bring their responses to the National Agenda in written form AND electronic media. This information is vital to the publication of the Annual National Final Report.

Continue to invite your colleagues, who are Dental Licensure Board examiners and your Military and Public Health Service colleagues who head/instruct dental education programs, to your Regional meetings.

Each Region should select next year's meeting site, date or tentative date during your Fall Regional CODE meeting. This information is published in the Annual National Final Report. Early notification may permit additional participation from other member schools in your Region.

The Regional meeting reports are to be submitted to the national Director in publishable format as an attachment to e-mail.

The required format and sequence will be:

- 1. CODE Regional Meeting Report Form**
- 2. Summary of responses to the National Agenda.
- 3. Individual school responses to the National Agenda
- 4. The Regional Agenda summary and responses.
- 5. CODE Regional Attendees Form**

** (Copies may be obtained from the Web site:

http://netserv.unmc.edu/code/codeFrame.html).

Mail a hard copy of the report to the National Director. Both electronic and hard copy versions are to be submitted **within thirty (30) days** of the conclusion of the meeting.

National CODE Meeting:

The meeting will be held <u>Thursday, February 24, 2005 from 4:00 pm to 6:00 pm</u> at the Fairmont Hotel in Chicago, Illinois. This is in conjunction with the annual meeting of the Academy of Operative Dentistry. Please submit 1 - 2 items for consideration for the 'agenda' of the National Meeting. Suggestions as to how to make this brief meeting productive and efficient are needed.

National Directory of Operative Educators:

The CODE National Office maintains the National Directory of Operative Educators as a source for other professionals to access regional information regarding the schools that are participating in CODE. It is imperative that the information be as current as possible. The National Director also uses this information to assist in any functions relating to CODE, its agendas and fellow members.

The current format may be downloaded from the web site. Access the CODE website and 'click' on forms. Locate the CODE Directory Update Form and download in Word, Word Perfect or PDF format. Complete the information requested and e-mail the form to the Webmaster.

Please have each school in your Region update the following information for the National Directory of Operative Educators:

School name and complete mailing address Individual names: (full time), phone #, fax #, e-mail address of faculty who teach operative dentistry.

(This could be individuals in a comp care program, etc. if there is no defined operative section of department.

If any individuals do not want their phone #, fax # or e-mail shared, please indicate that on the form.)

Include this information with the Regional Report by mailing a hard copy to the National Office of CODE. All update information received by mail will be forwarded by the National Office to the Webmaster for inclusion on the Web site.

Your help and cooperation in accomplishing the above tasks helps save so much time and effort in publishing the Annual National Final Report in a timely fashion.

Thank you, Larry D. Haisch, D.D.S. National Director, C.O.D.E. UNMC College of Dentistry 40th & Holdrege Streets Lincoln, Ne 68583-0750

lhaisch@unmc.edu

Office: 402-472-1290 Fax: 402-472-5290

2004 NATIONAL CODE AGENDA

(Please include a summary of the Regional Responses to the National Agenda questions, before listing individual Regional Responses).

(Please cite the evidence were applicable)

I. If bases are used under composites, what materials are being used? (Examples: glass-ionomer, flowables).

What are the criteria or conditions used in making the decision to place a base?

What is the rational for using the specific material(s)?

Is your school using self-etching bonding systems?

What system is used and what evidence was used in making this selection?

What has been the outcome?

II. Describe your school's warranty policy for direct and indirect restorations done in the student clinics:

Is there is a "no-charge for replacement" policy and how long would this usually be?

Describe your repair vs. replacement philosophy in student clinics for direct and indirect restorations. Provide some guidelines - indications or contraindications for repair vs. replacement. Are there differences between amalgams and composites?

How does your school handle remakes of clinically unacceptable Board restorations that your graduates or other candidates do on school patients of record?

III. Some faculty of dental schools would like to see the use of some form of electronic patient record with the patient's photo as well as pre-treatment intraoral photographs included in the record. Does your school use an electronic patient record , and if so, are these items included?

What type of radiographic record does your school use - conventional radiograph or digital? Both?

If digital x-rays are used, what are the legalities involved and how do you deal with them?

- **IV.** With the use of higher speed x-ray film, dental decay is becoming more difficult to see on radiographs. Discuss your school's use of film and the rationale for doing so.
- V. Is your school using electric handpieces?

What make?

Where are they being used?

Describe/discuss the pros and cons of the handpieces.

VI. Do you use the "Smart-Prep System" (SS White) of rotary instruments for selective dentin removal in student clinics?

Describe how often it is used, what your indications are and give technique details if different from the manufacturer's instructions.

What is your opinion of these instruments.

VII. Often it is difficult to obtain suitable patients for student needs. They seem to be either too easy or too difficult. The teeth either have incipient dental caries or are grossly decayed.

Does your school have difficulties in acquiring suitable patients/conditions for students?

If so, how do you deal with this problem?

VIII. Board examinations tend to require traditional tooth preparations and restorations. There is a decrease in the number of teeth requiring these types of preparations and an increase in smaller lesions requiring more conservative treatment.

Is this a problem at your school or for your students doing Board Examinations?

Has there been any attempt to discuss the problem with the Licensure Board?

What attempt was made and what was the outcome?

What recommendations would you make for improving communication with the Boards?

Regional CODE Agenda

To be established by the respective Region and Regional Director. (Please also report on responses to the Regional Agenda from all participants).

Suggestions for CODE.

What can the organization do to improve its effectiveness?

What is suggested to improve the Web site? <u>http://netserv.unmc.edu/code/codeFrame.html</u>

Other suggestions?

REMINDERS:

National Directory of Operative Educators:

Please have each school update the following information for the National Directory of Operative Educators:

School name and mailing address Individual names: (full time), phone #, fax #, e-mail address of faculty who teach operative dentistry. (This could be individuals in a comp care program, etc. if there is no defined operative section of department.)

Include this information with the Regional Report in an electronic file transmitted via e-mail plus the mailing of a hard copy to the National Office of CODE.

All update information will be forwarded to the Webmaster for inclusion on the Web site: <u>http://netserv.unmc.edu/code/codeFrame.html</u>.

Larry D. Haisch, D.D.S. National Director, C.O.D.E. UNMC College of Dentistry 40th & Holdrege Streets Lincoln, Ne 68583-0750 E-mail: <u>lhaisch@unmc.edu</u> Office: 402-472-1290 Fax: 402-472-5290

CODE REGIONAL MEETING REPORT FORM

REGION:

LOCATION AND DATE OF MEETING:

CHAIRPERSON:

Name:	Phone #:	
Address:	Fax #:	
	E-mail :	

List of Attendees:

Please complete the CODE Regional Attendees Form (enclosed at end of Agenda)

Suggested Agenda Items for Next Year:

LOCATION & DATE OF NEXT REGIONAL MEETING:

Name:	Phone #:
Address:	Fax #:
	E-mail :
	Date:
	Please return all completed enclosures to Dr. Larry D. Haisch, National Director, UNMC College of Dentistry; 40 th and Holdrege Streets; Lincoln, NE 68583-0750. Deadline for return: <u>30 Days post-meeting</u> Office: 402 472-1290 Fax: 402 472-5290 E-mail: lhaisch@unmc.edu Also send the information on a disk and via e-mail with all attachments. Please indicate the software program and version utilized for your reports.

NAME	UNIVERSITY	PHONE #	FAX #	E-MAIL ADDRESS

CODE REGIONAL ME	ETING REPORT FORM
REGION: I (Pacific)	
LOCATION AND DATE OF MEETING:	
USC School of Dentistry	Los Angeles, CA
November 4-5, 2004	
CHAIRPERSON:	
Name: Dr. Richard Kahn	Phone #: (213) 740-8084
Address: USC School of Dentistry	Fax #: (213) 740-6778
925 W 34 th Street	E-mail: rkahn@usc.edu
Los Angeles, CA 90089-0641	
 QA protocols for work done by commercial dental lab Treatment planning - uniformity/consistency among fa Ergonomics/posture Progress/status of schools w/r to incorporating caries LOCATION & DATE OF NEXT REGIONAL MEET Name: Drs. Ray Tozzi. Charles "Ned" Hill 	ns aculty? a risk assessment principles into preclinical and curricula ING: Phone #: 702-774-2673
Address: UNLV School of Dentistry (tentative)	Fax #: 702-774-2051
1001 Shadow Lane MS 7410	E-mail : Raymond.Tozzi@ccmail.nevada.edu
Las Vegas, NV 89106-4124	Date: TBD
Please return all completed enclosures t College 40 th and Holdrege Stree Deadline for return Office: 402 472-1290 Fax: 402 Also send the information on a c Please indicate the software prog	to Dr. Larry D. Haisch, National Director, UNMC e of Dentistry; ets; Lincoln, NE 68583-0750. n: <u>30 Days post-meeting</u> 2 472-5290 E-mail: Ihaisch@unmc.edu disk and via e-mail with all attachments. ram and version utilized for your reports.
Ch. 1	Pg. 1 ARD\Staff\LDH\\CODE\Code2004Manual

2004 NATIONAL CODE AGENDA REGION I SUMMARY RESPONSES TO NATIONAL AGENDA

I. If bases are used under composites, what materials are being used? (Examples: glassionomer, flowables).

Bases under composites: Generally not used routinely, but selectively in deep cavities approximating the pulp. Two schools report use of bases as dentin replacement for medium and large Class I and II cavities. Glass ionomer is the most commonly used material – frequently in conjunction with calcium hydroxide when near the pulp – due to its sealing ability and fluoride release. No schools are currently using self-etching bonding systems.

II. Describe your school's warranty policy for direct and indirect restorations done in the student clinics:

Warranty policies: All schools generally stand behind services provided in their clinics, but none report a formal policy. Restorations which fail within 12 months are generally replaced at no charge. This topic led to a lengthy general discussion of QA protocols. Repair vs. replacement: Wide variation in philosophy with no school reporting an official departmental policy. Typically handled on a case by case basis according to the clinical judgment of the attending faculty.

Replacement of Board restorations: Most commonly performed for the usual fee, but at no charge at one school.

III. Some faculty of dental schools would like to see the use of some form of electronic patient record with the patient's photo as well as pre-treatment intra-oral photographs included in the record. Does your school use an electronic patient record, and if so, are these items included?

Electronic record: Four schools are currently using, with a fifth anticipating adopting over next 24 months. Two schools routinely incorporate patient photos into the electronic record. Radiographs: One school uses all digital, two use digital panoramic with conventional intraoral, one uses digital for grad endo and all pedo cases, and others exclusively use conventional. Two schools cite safeguards against alteration of digital x-ray images inherent in the software used.

IV. With the use of higher speed x-ray film, dental decay is becoming more difficult to see on radiographs. Discuss your school's use of film and the rationale for doing so.

All schools are using higher speed (F) films to reduce radiation exposure, with variable opinions on caries diagnosis relative to lower speed films.

V. Is your school using electric handpieces?

Electric handpieces: One school uses them exclusively (KaVo), one will adopt them in their new clinic next year. Torque and variable speed are cited as pros, with cost as a con.

VI. Do you use the "Smart-Prep System" (SS White) of rotary instruments for selective dentin removal in student clinics?

Smart Prep: Used by one school on an experimental basis. Opinion is generally that it is not very useful. Described by one attendee as "a solution looking for a problem."

VII. Often it is difficult to obtain suitable patients for student needs. They seem to be either too easy or too difficult. The teeth either have incipient dental caries or are grossly decayed.

Obtaining suitable patients: Most schools are experiencing difficulty, with treatment costs and poor patient retention due to time and inconvenience of treatment cited as primary causes. Reduced requirements, fee subsidies, and increased use of simulation are responses to the problem. This topic also led to an extended discussion on the relative merits of different clinical education models ("comprehensive care" and its various interpretations, discipline-based block assignments, student- vs. patient-centered care, scheduling managed by students or school, etc.).

VIII. Board examinations tend to require traditional tooth preparations and restorations. There is a decrease in the number of teeth requiring these types of preparations and an increase in smaller lesions requiring more conservative treatment.

Cases for Board exams: Problem of identifying patients requiring traditional preparations exists to varying degrees. A lively discussion ensued over the validity of licensure examinations, including routine treatment of potentially reversible lesions with traditional invasive preparations and the need to test for clinical judgment/decision making vs. technical skills. Board reps indicated that eventual elimination of actual patients in favor of simulation is not likely, in their opinions. Ditto for elimination of board exams in favor of licensure by credential upon graduation. More likely is the adoption of a "curriculum-integrated" format wherein students are tested by board examiners during designated regularly scheduled clinic sessions. Communication/calibration with licensure boards has produced positive outcomes. Dialogues between board representatives and faculty at CODE meetings have been particularly enlightening

2004 NATIONAL CODE AGENDA REGION 1 RESPONSES

(Please cite the evidence were applicable)

Region I School Abbreviations:

ASD	Arizona School of Dentistry	UNLV	University of Nevada
UA	University of Alberta	UCSF	University of California-San Francisco
UBC	University of British Columbia	UOP	University of the Pacific
LLU	Loma Linda University	USC	University of Southern California
OHSU	Oregon School of Dentistry	UW	University of Washington

UCLA University of California-Los Angeles

I. If bases are used under composites, what materials are being used? (Examples: glass-ionomer, flowables).

- **ASD**: No response.
- UA: No response.
- **UBC**: Bases under composites not used routinely, but we use Glass Ionomer (Fuji II LC/ Photac) when there is a deeper portion on the pulpal floor due to caries removal Vitremer is used in a near pulp exposure or after Ca(OH)2 with an exposure.
- LLU: Bases are only used in the event of deep preparations close to the pulp (≤0.5 mm). Students have the option of placing Dycal which is then covered over with Vitrebond, or using Ultradent's resin reinforced CaOH (Ultrablend Plus). A flowable liner (FujiLiner LC or Ultradent Permaflo) is used under composites, but kept just shy of the cavosurface margins (closed sandwich technique). A study underway at LLU is demonstrating better dentin bridging with MTA vs., CaOH. MTA, however, remains difficult to handle clinically.
- OHSU: No response.
- **UCLA**: Resin-modified glass ionomer (RMGI) base (Fuji II LC) under medium & large Class I and II, none placed routinely under others *EXCEPT* RMGI liner (Vitrebond) in cases of close proximity to pulp.
- **UNLV**: Glass ionomer (Fuji Paste Pack easy to handle, or Vitremer) in conjunction with CaOH (pulp capping) is used as a liner under all deep CL I and CL II restorations. Glass ionomer is used as a base for indirect ceramic and composite restorations for dentin replacement and to block-out undercuts.

- UCSF: Glass ionomer (mostly Fuji IX) in larger preparations and when close to pulp.
- **UOP**: No response.
- **USC**: We do not routinely use a base under a composite. CaOH is recommended when we have an exposure or near exposure, and is covered by GI liner to protect CaOH when etching. Flowable composite resin is used when placing restorations with a high C factor to minimize stress on the dentin bond.
- **UW**: Different emphases in preclinical and clinical teaching. Preclin bases are used to establish ideal form for indirect preparations, but are not routinely used for direct procedures. Emphasis for the latter is on the proper application of adhesive resins. In clinic, bases are used more frequently students are encouraged to learn the techniques. Glass ionomer (Fuji II LC or Fuji IX) is most commonly used.

What are the criteria or conditions used in making the decision to place a base?

- ASD: No response.
- **UA**: No response.
- **UBC**: GI is used because of its bonding to dentin
 - We do open sandwich technique on any prep that approaches the CEJ or is on the root surface also because of its dentin bonding capacity
- **LLU**: Bases are not routinely placed under composites except in instances where the preparation is very deep and deemed to be close to the pulp (≤ 0.5 mm).
- **OHSU**: No response.
- UCLA: Class I and II cavities, medium or larger i.e. any but the smallest pit/fissure or minimal proximal slot preps). These latter exceptions tend to be initial restoration of small lesions while "medium/large" reflects more extensive (deeper/broader) dentinal caries and includes virtually all replacements of existing Class I and II restorations with composite.
- **UNLV**: Undercuts and dentin replacement under indirect restorations, closed sandwich technique (0.5 1 mm GI layer) with all Class I and II direct resins.
- **UCSF**: To reduce volume of composite resin and thus shrinkage stresses in large restorations. Fuji IX is used near the pulp due to sealing ability and absence of heat production when light curing other products such as Fuji II.
- **UOP**: No response.

- **USC**: We do not routinely use a base under a composite. CaOH is recommended when we have an exposure or near exposure, and is covered by GI liner to protect CaOH when etching. Flowable composite resin is used when placing restorations with a high C factor to minimize stress on the dentin bond.
- **UW**: For indirect restorations, to improve path of draw and reduce bulk of restoration material.

What is the rational for using the specific material(s)?

- **ASD**: No response.
- **UA**: No response.
- **UBC**: GI is used because of its bonding to dentin
 - We do open sandwich technique on any prep that approaches the CEJ or is on the root surface also because of its dentin bonding capacity
- **LLU**: A CaOH liner/resin base is felt to provide protection and stimulate formation of reparative dentin in preparations close to the pulp. In the majority of the composite restorations, a flowable liner is all that is used, prior to placement of the composite.
- **OHSU**: No response.
- **UCLA**: (1) Due to numerous and often uncontrollable variables in dentinal substrates, host physiology, operating environment, and composition and manipulation of resin adhesives, it is virtually impossible to consistently produce a resin/dentin seal that is both 100% complete and able to totally withstand disruption from polymerization shrinkage forces of composite restoratives. While the resultant interfacial discontinuities are often clinically insignificant, it is widely believed that they give rise to post-operative sensitivity on larger composite restorations under occlusal load.
 - (2) Glass ionomer bonds chemically to intact (non acid-demineralized) dentin, bonds reliably across a broad range of commonly encountered substrate variables, does not rely on an aggressive demineralization of dentin in order to bond to it, does not challenge its own adhesion with shrinkage forces during setting, and as such produces reliable sealing of dentin with less technique sensitivity and far less likelihood of post-operative sensitivity as compared to resin-dentin bonding.
- **UNLV**: The use of glass ionomer due to strength, fluoride release, and excellent dentin bonding. It has been noted in various studies that glass ionomer helps reduce post-operative sensitivity from composite restorations.
- **UCSF**: Less shrinkage and less heat produced on setting as compared to other material options.

- **UOP**: No response.
- **USC**: Glass ionomer seals the dentinal tubules and helps prevent post-op sensitivity.
- **UW**: GI is used because of chemical adhesion to tooth, fluoride release, and adhesion to overlying composite resin.

Is your school using self-etching bonding systems?

- **ASD**: No response.
- **UA**: No response.
- UBC: No.
- **LLU**: Not at this time. The separate primer and adhesive system has been successful in student's hands, and studies are showing good long-term success with the separate bottle systems.
- OHSU: No response.
- UCLA: No.
- UNLV: No.
- UCSF: No.
- **UOP**: No response.
- USC: No.
- UW: No.

What system is used and what evidence was used in making this selection?

- **ASD**: No response.
- UA: No response.
- **UBC**: We do not use self etching bonding systems because of low bond strength
- **LLU**: Not using any self-etching systems at this time.
- OHSU: No response.

- **UCLA**: Chose not to use a self-etch system due to questionable ability to produce optimal adhesion to unetched enamel and lack of long-term clinical track record. We are unable to identify a compelling reason to use a self-etching bonding system in our clinic.
- UNLV: N/A
- UCSF: N/A
- **UOP**: No response.
- **USC**: Kerr Optibond Solo plus. Acceptable literature reviews and it comes prepackaged which is a requirement at our school.
- **UW:** Concerns over permeable membrane characteristics of self-etch products especially one-step types and resultant potential for problems over the long term.

What has been the outcome?

- **ASD**: No response.
- **UA**: No response.
- UBC: N/A
- LLU: N/A
- **OHSU**: No response.
- UCLA: N/A
- UNLV: N/A
- UCSF: N/A
- **UOP**: No response.
- **USC**: We do not have a program to track outcomes related to this specific issue, but the faculty has not noticed problems.
- **UW**: We are reverting to more routine use of a 3-step total etch system (All-Bond 2) due to reported better predictability (per van Meerbeeck, et al.).

II. Describe your school's warranty policy for direct and indirect restorations done in the student clinics.

- **ASD**: No response.
- **UA**: No response.
- **UBC**: If anything is our fault (such as doing 4 surface composites which fail within two years), we replace at no charge. If there is recurrent decay and the patient did not follow the caries management program as prescribed then the repair/remake is their responsibility
- LLU: We have no warranty; the term "warranty" is against the dental practice act. We do, however, evaluate failed or unsatisfactory restorations against our standards of care or community standards as they become apparent, either by identification at subsequent appointments or by patient complaints. Restorations that are mechanically sound, but patients have decided not to like for whatever reason, are evaluated by group leaders. An unusual occurrence report is filed and a final decision is made by the Clinic Administrator as to the level of financial allowance is given, if indeed one is needed.
- OHSU: No response.
- **UCLA**: No warranty per se. Restoration failures, in which the School as care provider is potentially responsible, are handled on a case-by-case basis. Clinical instructor makes a judgment on the cause of failure of shortcoming of a given restoration and advises the Group Director, who can authorize replacement at no fee or a reduced fee.
- **UNLV**: At this time, the clinical program is so new (4 months), we do not have an official policy. We are looking at replacement limits used by dental insurance carriers (24 months for direct, 5 years for indirect) as possible starting points for developing a school policy.
- **UCSF**: No warranty, but typically no charge 1-2 years after placement if crown or restoration fails. Replacements at no charge must be approved by a clinic instructor and two clinic directors.
- **UOP**: No response.

- **USC**: No written warranty program. Generally procedures will be redone at no cost if it is determined by a faculty person with agreement from a group practice director that the cause of the failure was the result of improper treatment. We have adopted a 3-tier QA protocol for indirect restorations (instructor completes objective criteria sheet in clinic, same instructor checks case before sending to lab, an independent instructor also examines the case to conduct QA on the clinical instructor) which has significantly reduced remakes. The main value has been faculty training and calibration.
- UW: No formal warranty policy. Tend to be very flexible regarding restorations placed with the past 3-5 years, evaluating each case individually. Only one individual (Clinic Director) has authority to authorize replacement at no charge.
 We annually hold a faculty calibration session to review QA issues from the past year. CE credit is given to attendees.

Is there is a "no-charge for replacement" policy and how long would this usually be?

- **ASD**: No response.
- **UA**: No response.
- **UBC**: There is no "no-charge for replacement policy" except to say our policy is that each case is judged individually. This applies equally to direct and indirect restorations
- **LLU**: Failed or unsatisfactory restorations are replaced at no charge for at least one year. Restorations that were acceptable and failed, either due to recurrent caries or function, are usually replaced using a five-year standard, i.e. lasting three years may allow a reduction in fee of 2/5's. These decisions are usually made in consultation with the faculty that discovered the problem.
- OHSU: No response.
- **UCLA**: No formal policy. Restorations which fail within 12 months, however, are typically replaced at no charge.
- **UNLV**: At this time, the clinical program is so new (4 months) we do not have an official policy.
- **UCSF**: No formal policy, but typically no charge 1-2 years after placement if crown or restoration fails. Situations are evaluated individually by clinic directors who have authority to permit replacement at no charge when indicated un their judgment.
- **UOP**: No response.

- **USC**: Typically, a period of 6-12 months will be the cutoff point for redoing at no additional fee.
- **UW**: No formal policy usually replace at no charge within 12 months. Very flexible for older cases (3-5 years old), may negotiate fees and/or lab costs with patients.

Describe your repair vs. replacement philosophy in student clinics for direct and indirect restorations. Provide some guidelines - indications or contraindications for repair vs. replacement. Are there differences between amalgams and composites?

- **ASD**: No response.
- UA: No response.
- **UBC**: No response.
- LLU: Repair of direct restorations is not usually attempted, dependant on the size and location of the repair; in general they are replaced if that is the best option for the patient. Occasionally indirect restorations are repaired i.e. a margin filling, but usually are replaced. The faculty in charge of the patient care makes this decision at the time of service. Patients are also given the option of repairing or replacing a restoration, provided repair is a viable option.
- **OHSU**: No response.
- **UCLA**: Variable philosophy among our faculty, with some consistently eschewing repair in favor of replacement while others will make creative attempts to repair. Repair attempts are aborted when it becomes clear that removal of secondary caries cannot be confirmed unless the restoration is removed, or when access for proper placement and finishing of the repair material is unattainable. Repairs are often used to stabilize patients (caries control) pending other treatments which precede definitive restorations, especially when a repaired restoration is deemed more durable/predictable than a provisional restoration in these situations. Repairs are more likely when a successful repair can prolong the service of an otherwise satisfactory fixed partial denture, when patient management or general health considerations dictate avoiding complex and multiple appointment procedures, and the tooth is not a removable partial denture abutment. All other things being equal, we are more likely to repair composites vs. amalgams due to the ability to bond new composite to old.
- **UNLV**: No response.
- **UCSF**: Direct restorations are usually not repaired (composites occasionally, amalgams almost never). Complex restorations/crowns are occasionally repaired.
- **UOP**: No response.

- **USC**: We do not have a policy on when repairs are indicated. Generally amalgam restorations are replaced although there is not scientific reason for this. Composite restorations are more likely to be repaired if it is a large restoration; however, there is no protocol when and how this should be done. Indirect restorations that are complex and multiunit might very well be more easily, predictably, and efficiently repaired. On occasion single units might be repaired, but replacement is more the typical course.
- **UW**: We typically generate a list of risks and benefits for the patient and consider the relative outcomes in these situations to facilitate the clinical decision. E.g., repair is more likely to be attempted on an abutment for a complex prosthesis. We teach that composite is repairable using sandblast-type surface treatment.

How does your school handle remakes of clinically unacceptable Board restorations that your graduates or other candidates do on school patients of record?

- **ASD**: No response.
- UA: No response.
- UBC: N/A
- **LLU:** LLUSD does replace unacceptable board restorations at the customary school fees. This is usually a requirement of the boards. We do not allow non-LLUSD candidates to use patients of record.
- OHSU: No response.
- **UCLA**: Replaced at no charge.
- **UNLV**: No response.
- **UCSF**: We haven't experienced many problems with unacceptable restorations on boards. If such a problem occurs on patient of record, the restoration would be replaced at no charge.
- **UOP**: No response.
- **USC**: Patients registered at the school will have the procedure corrected; however, since the student who treated the patient often has already graduated, the patient will be charged for the procedure.
- **UW**: Replaced at no charge.

- III. Some faculty of dental schools would like to see the use of some form of electronic patient record with the patient's photo as well as pre-treatment intra-oral photographs included in the record. Does your school use an electronic patient record, and if so, are these items included?
 - ASD: No response.
 - UA: No response.
 - **UBC**: We use *Axium* at present which does include the patient's photo and pretreatment intra-oral photographs. However, in our new clinic, we will be completely paperless and the new software will have this capability
 - **LLU:** Our school is migrating, over the next 24 to 36 months, to an all-electronic patient record. This record will include a photo of the patient in the demographics section and an image manager for radiographs and photographs of the patient, teeth and restorations. Students are currently required to have laptop computers.
 - OHSU: No response.
 - **UCLA**: We use an electronic record (*Software of Excellence*, Australia), but while the software has the capability of storing images in each patient record, this capability has not been made available. Reasons cited by the software gatekeepers are costs to both incorporate this feature into our current software build and to store the additional data.
 - **UNLV**: UNLV does have paperless electronic records (*Salud software*, Ireland) but does not incorporate full-face patient photos as part of the dental record. Intra-oral photos <u>are</u> part of the EDR.
 - **UCSF**: We have used *Axium* for four years, but only for entering/updating the treatment plan all other components of the patient record remain in paper form. We are moving toward a paperless record keyboards and monitors will be installed in all clinic cubicles by January '05. Issue of who will perform the data entry remaining to be resolved. A digital clinical camera (Kodak) is newly available in the clinic.
 - **UOP**: No response.
 - **USC**: We use the *Axium* electronic record system, however, we still have some items of the patient record in hard copy. The Axium system currently supports insertion of digital photos into the record, but only by individuals with high access levels. Recently we have incorporated a digital panoramic film as part of the record.

UW: Our students are not yet required to have laptop computers. We are currently evaluating/planning the adoption of an electronic record system, and may go online with it by Fall, 2005. Cameras, mirrors, and retractors are available in the clinic, and students will be required to document and develop individual portfolios of their cases.

What type of radiographic record does your school use - conventional radiograph or digital? Both?

- ASD: No response.
- **UA**: No response.
- **UBC:** Currently we have digital panoramics and otherwise conventional radiographs. Again, in the new clinic everything will be digital
- **LLU**: At present we are using both conventional and digital radiographs. Today, all endodontic radiographs in the graduate program are digital. All radiographs in the pediatric department, both predoctoral and graduate, are also digital. We are scanning some legacy radiographs into the system for graduate, faculty and predoctoral clinic records.
- OHSU: No response.
- **UCLA**: Conventional only.
- **UNLV**: UNLV utilizes digital radiography.
- **UCSF**: Currently using conventional radiographs in clinics, with some limited use digital radiographs by our Faculty Group Practice.
- **UOP**: No response.
- **USC**: We use digital panoramic images and conventional radiographs for periapical and bitewing views. We are moving toward digital, but the hardware and software are not yet "live." Conventional film is still the standard for now, with a digitized (scanned) version in the electronic patient record for the ones currently taken.
- **UW**: Conventional only.

If digital x-rays are used, what are the legalities involved and how do you deal with them?

- **ASD:** No response.
- UA: No response.

- **UBC**: With regards to the legalities of digital radiographs, when we have this fully operational in our new clinic, the radiographs will be locked in. That is, once the radiograph is taken, if it is altered in any way this will be recorded. In B.C., the courts are more concerned with radiographs being sent electronically to other dentists and diagnosis and treatment performed on these images.
- LLU: Legalities of digital radiographs are probably more perception and management than reality. Non-digital radiographs can be altered; digital once captured to the system cannot be altered due to the constraints of the software package. Viewing enhancements can be made, but always revert to the original image or are saved as a marked copy. If a legal challenge were mounted, documentation and testimony from the software company might be required to resolve the issue.
- **OHSU**: No response.
- UCLA: N/A
- **UNLV**: Each student is issued a school-owned laptop computer. Laptops are monitored by the school IT department students are not allowed to reconfigure, add programs or memory, etc. No material can be printed from the laptops. Hard drives are wiped clean each trimester. The Salud software maintains an unchangeable baseline patient record, and the system cannot be accessed after hours from off-campus. Digital images are stored on huge servers on the main UNLV campus.
- UCSF: N/A.
- **UOP**: No response.
- **USC**: We're not there yet, but safeguards and unalterable time/date indicators will likely be embedded with the data to assure authenticity and no alteration to the original.
- **UW**: N/A
- IV. With the use of higher speed x-ray film, dental decay is becoming more difficult to see on radiographs. Discuss your school's use of film and the rationale for doing so.
 - **ASD**: No response.
 - **UA**: No response.

- **UBC**: We use high speed film, there is no evidence base to support the concept of decay being more difficult to diagnose on this film and this has not been our experience.
- **LLU:** We use the highest film speed available. While some reports or image degradation is reported, proper film exposure and processing has managed that issue. The rational for such usage are the recommendations or mandates of state, federal and ADA governing bodies and good patient care practices. Our radiology expert advises that F-speed is more technique sensitive to use, but there is no literature citing any inherent difference in caries detection/diagnosis vs. slower films.

D-speed is still superior for quality of resolution. Ideal would be to use F-speed for periapical x-rays and D-speed for bitewings. Students are using D-speed for board patient screenings.

- OHSU: No response.
- **UCLA**: The rationale is reduced radiation exposure patients. The general feeling among clinical faculty is that decay is in fact more difficult to detect on newer, higher speed film.
- UNLV: N/A
- **UCSF**: We use Ekta speed film to minimize radiation. Use of radiographs to detect caries and drive treatment planning should be augmented by use of the Diagnodent. Students are currently exposed to this device, and we are getting a few units for our clinics.
- **UOP**: No response.
- **USC**: We use the higher speed film (E) and I am told because of the concerns with radiation safety and that it is the professional standard. We are not aware of any studies which constitute evidence of diminished caries diagnosis sensitivity /specificity for E- vs. D-speed film, and we have not noticed a significant problem with caries detection. That said, board exam candidates tend to use D-speed film for their cases. As with LLU, our radiology expert advises that F-speed is more technique sensitive to use, but there is no literature citing any inherent difference in caries detection/diagnosis vs. slower films.
- **UW**: We increasingly focus our teaching on risk assessment and deciding whether to intervene with restorations vs. remineralization, i.e. treatment decisions are not as heavily weighted in the radiographic interpretation as in the past. Evidence in the literature indicates that even with D-speed film, the depth of a carious lesion can be up to 30% greater than indicated on the radiograph.

V. Is your school using electric handpieces?

- **ASD**: No response.
- **UA**: No response.
- **UBC**: We currently do not use electric handpieces, they will be used in the new clinic.
- **LLU**: No. We will, however, be evaluating one in our graduate prosthodontics program.
- **OHSU**: No response.
- **UCLA**: Not in the student clinics, but we are evaluating them in the Faculty Group Dental Practice.
- UNLV: Yes.
- **UCSF**: No electric handpieces except for a limited number of KaVo units in our Faculty Group Practice.
- **UOP**: No response.
- USC: No.
- UW: No.

What make?

- **ASD**: No response.
- **UA**: No response.
- UBC: N/A
- LLU: Brassler/NSK
- **OHSU**: No response.
- **UCLA**: Currently evaluating KaVo, NSK/Brasseler, and Sirona.
- UNLV: KaVo.
- UCSF: N/A

USC: N/A

UW: N/A

Where are they being used?

- **ASD**: No response.
- **UA**: No response.
- UBC: N/A
- **LLU**: We will be evaluating the Brasseler/NSK in our graduate prosthodontics program.
- **OHSU**: No response.
- **UCLA**: Only in our Faculty group Dental Practice.
- **UNLV**: Pre-clinical and Clinical.
- **UCSF**: Faculty Group Practice only.
- **UOP**: No response.
- USC: N/A
- **UW**: N/A

Describe/discuss the pros and cons of the handpieces.

- **ASD**: No response.
- **UA**: No response.
- UBC: N/A
- LLU: N/A
- **OHSU**: No response.

- UCLA: Pros: significantly higher torque; quieter; can adjust max RPM up and down, converting from high speed to midrange or even (in some cases) low speed on the fly; light weight.
 Cons: More expensive; different "feel", primarily due to a momentary delay between pressing the foot pedal and bur rotation, compared to the more familiar instantaneous response of air-driven handpieces. Durability/frequency of repair compared to air-driven? not sure.
- **UNLV**: All pros!! They operate smoothly and efficiently with excellent torque. Variable speed operation is very easy to use. Water spray is easily adjusted.
- **UCSF**: Being considered for use in clinics. <u>Advantages</u>: steadier, quieter, less vibrations, good speed control and torque. <u>Cons</u>: Expensive, need to be lubricated every day.
- **UOP**: No response.
- USC: N/A
- **UW**: N/A

VI. Do you use the "Smart-Prep System" (SS White) of rotary instruments for selective dentin removal in student clinics?

- ASD: No response.
- UA: No response.
- **UBC**: We do not use Smart Prep.
- LLU: No.
- OHSU: No response.
- UCLA: No.
- **UNLV**: Yes, but, at this time, on an experimental basis only, primarily for remedial purposes.
- UCSF: No.
- **UOP**: No response.
- USC: No.
- UW: No response.
Describe how often it is used, what your indications are and give technique details if different from the manufacturer's instructions.

- **ASD**: No response.
- **UA**: No response.
- UBC: N/A
- LLU: N/A
- OHSU: No response.
- UCLA: N/A
- **UNLV**: At this time, they are being used for deep caries removal in anticipation of an indirect pulp capping procedure.
- UCSF: N/A
- **UOP**: No response.
- USC: N/A
- UW: No response.

What is your opinion of these instruments.

- **ASD**: No response.
- **UA**: No response.
- **UBC**: No response.
- LLU: Not predictable tactile feedback from hand instruments still preferable. Didn't seem to remove decay completely
- **OHSU**: No response.
- UCLA: No basis for an opinion.
- **UNLV**: It is a little early to tell but they do not appear to be useful enough to outweigh their additional cost.

- **UCSF**: The burs wear out to easily and are costly.
- **UOP**: No response.
- **USC**: Philosophically, the technique of caries removal is anathema to what we traditionally do. We teach removal of caries from the periphery, once outline form is established, rather than from the center first.
- **UW**: No response.
- VII. Often it is difficult to obtain suitable patients for student needs. They seem to be either too easy or too difficult. The teeth either have incipient dental caries or are grossly decayed.

Does your school have difficulties in acquiring suitable patients/conditions for students?

- **ASD**: No response.
- UA: No response.
- **UBC**: Yes, our complex treatment cases are often too complex for the students (I think the dental community refers them here because they don't know how to treat them).
- LLU: No response.
- OHSU: No response.
- UCLA: Yes.
- **UNLV**: YES. Unfortunately, since UNLV is so new, we are accepting difficult cases since that is what is presenting at the clinic.
- **UCSF**: Yes, difficult getting good patients. We also have a problem with patient retention on the clinic due to the number of visits required before treatment begins.
- **UOP**: No response.
- **USC**: Yes. Ability to afford recommended treatment vs. numbers of patients seeking treatment, however, accounts for the problem. We don't, however, have requirements for specific numbers of procedures. We do require passage of clinical examinations for amalgam and composite after having prior experiences in those procedures.
- **UW**: Yes. DHHS/State dental coverage doesn't provide for crowns.

If so, how do you deal with this problem?

- **ASD**: No response.
- **UA**: No response.
- **UBC**: If the treatment is too complex, the patients are referred to our specialties clinic and we keep screening for suitable patients. In addition, we have a group system where students in the group ensure that all have the requirements from their patient pool.
- LLU: No response.
- OHSU: No response.
- **UCLA**: Much of the difficulty has revolved around patients unable to pay for more costly services such as FPDs. Dean has established a fund to subsidize fees in selected instances. Requirements have and continue to be adjusted to reflect the limited availability of opportunities to do certain procedures in our patient pool. One of the two required FPDs can now be done in simulation mode.
- **UNLV**: No response.
- **UCSF**: Dean has established a voucher system. Each student receives one voucher for use on a case of his/her choice, allowing the patient to receive treatment for the cost of the lab fee only. For "simple" patients for the second year "Preventive" clinic, notices were sent at to local colleges offering baseline, cleaning, x-rays, and sealants for \$55.
- **UOP**: No response.
- **USC**: We do the best we can. Our students have limited experience treating minimal disease situations. Most of the restorations we are placing are replacement of previous restorations or severely involved teeth. Our policy on not treating minimum enamel-restricted lesions has reduced the number of minimal lesions available for the students.
- **UW**: No response.

VII. Board examinations tend to require traditional tooth preparations and restorations. There is a decrease in the number of teeth requiring these types of preparations and an increase in smaller lesions requiring more conservative treatment.

Is this a problem at your school or for your students doing Board Examinations?

- ASD: No response.
- UA: No response.
- **UBC**: Canada does not have boards.
- **LLU:** As every school has reported, these lesions of minor nature do not exist in large numbers. LLUSD allows students to data mine their assigned patient family, save lesions that are "board quality", and do free screenings at board time for patients. All of these approaches are not totally acceptable and do not provide good patient care; most lesions selected for the board exams should attempt remineralization first, as most are E2 lesions. The very concept that a person is not an acceptable dentist and must prove their competency to a governing body, on a live patient, flies in the face of all that is within the societal standards of patient care and protection from unlicensed caregivers.
- OHSU: No response.
- **UCLA**: More inconvenience vs. a problem for candidates seeking "ideal" lesions than a problem. Much of the inconvenience is self-imposed, since CA Board does not require "ideal" lesions but the conventional "wisdom" among candidates is that such lesions will improve one's likelihood of passing. Acceptance of teeth with existing Class I restorations for the Class II amalgam case has helped. That said, it is fair to say that many cases being used for the amalgam examination would commonly receive composite in a non-examination setting, and appropriately so, to restore these incipient and early lesions.
- UNLV: N/A.
- **UCSF**: We are teaching "Minimally Invasive Dentistry". Many of the incipient lesions being used for Class II and III should ideally be treated chemically first.
- **UOP**: No response.
- **USC**: Yes. Our "Board" preparation activities have changed from a Mock-Board clinical Operative exam to a series of simulation exams on extracted teeth for amalgams.
- **UW**: No response.

Has there been any attempt to discuss the problem with the Licensure Board?

- **ASD**: No response.
- UA: No response.
- UBC: N/A
- LLU: Yes.
- OHSU: No response.
- UCLA: Yes.
- UNLV: N/A.
- UCSF: Yes.
- **UOP**: No response.
- **USC**: The school administration has been very active in trying to change the licensure process. There is ongoing dialog, including efforts with other agencies such as the California Dental Association to do curriculum integrated format exams instead of stand-alone Board exams. SB 1865 also became law recently. *(See Regional CODE Agenda for information regarding SB 1865)* This allows the WREB exam to be taken in place of the DBC (Dental Board of California) exam, but there are some contingencies.
- UW: No response.

What attempt was made and what was the outcome?

- **ASD**: No response.
- UA: No response.
- UBC: N/A
- **LLU**: The three western boards (Western Regional, California, and Nevada) have been invited to participate in the annual CODE meetings. Western Regional has been at most of our meetings.
- **OHSU**: No response.
- **UCLA**: Some very insightful discussions have occurred at our Region I CODE meetings! Both the instructors and examiners have walked away enlightened with a better understanding of each other's issues.

UNLV: N/A.

- UCSF: The CA State Board will now allow "slot" preps for the Class II amalgam procedure.
- **UOP**: No response.
- USC: The California Dental School Deans have ongoing dialog with DBC concerning initial licensure for their graduates.
 We have had good communications with our board. We meet at least twice annually with the board examiners to review what we are teaching at our schools. Although I believe the board process and evaluation policies need to be modified I think the board has made an effort to calibrate their examiners in an attempt to make the results of the exam as accurate as possible. I believe there are better ways to determine the competence of candidates for licensure than the board exam as it is presently conducted.
- **UW**: No response.

What recommendations would you make for improving communication with the Boards?

- ASD: No response.
- **UA**: No response.
- UBC: N/A
- **LLU**: Attend the annual CODE meetings as well as the CAMBRA (Caries Management by Risk Assessment) school meetings. Operative Dentistry is moving towards a minimally invasive philosophy of treatment.
- OHSU: No response.
- **UCLA**: Invite Board reps to CODE!
- **UNLV**: No response.
- **UCSF**: There seems to be pretty good communication with our state board at this time.
- **UOP**: No response.
- **USC**: Continue to use opportunities such as CODE to promote dialog. There is no single agency that will effect change. Coordinate multi-agency efforts that have a common purpose. The Dental Board of California does have a board position for a faculty member.
- UW: No response.

<u>Regional CODE Agenda</u>– summary of discussion. New legislation affecting dental practice in CA:

Senate Bill 1865 (PASSED) will allow applicants for dental licensure in CA to qualify by successfully completing either the CA board exam OR the Western Regional (WREB) exam. Candidates in 2005 will probably not be impacted, as cross-exam validity and other issues are being worked out. The validity assessment is scheduled for completion by 9/30/05. Once the bill takes effect, candidates passing the WREB will also be required to subsequently pass the CA ethics/jurisprudence exam to qualify for CA licensure.

The CA board continues to explore other avenues to licensure, but feels that elimination of an exam altogether is not appropriate. Certification by a third party is in the best interests of protection of the public. A "curriculum integrated" format as been discussed by the board with CA schools. Under this protocol, students would take sections of the exam – simulated and clinical – while in school, creating the opportunity for completion of the exam prior to and licensure upon graduation.

Assembly Bill 539 (PASSED) will allow third- and fourth-year dental students in CA to take the CA dental board exam for dental hygiene licensure. Under this bill, licenses granted to dental students would expire permanently after a maximum of two years, and students are no longer eligible for the exam upon graduation from dental school. The bill purportedly addresses the need for dental students earn additional income to pay costs of dental education as well access to care issues. The Committee on Dental Auxiliaries (COMDA) in CA is opposed to this bill, and CA school reps expressed skepticism over third- (or even fourth-) year students being competent to practice as licensed dental hygienists.

Suggestions for CODE

What can the organization do to improve its effectiveness?

What is suggested to improve the Web site?

http://netserv.unmc.edu/code/codeFrame.html

Other suggestions?

• Should the name of CODE be changed? Does "Operative Dentistry" still reflect the range of issues that is pertinent to the members?

Suggested topics for next year's National C.O.D.E. agenda:

- Faculty calibration
- QA protocols for work done by commercial dental labs
- Treatment planning uniformity/consistency among faculty?
- Ergonomics/posture
- Progress/status of schools with regard to incorporating caries risk assessment principles into preclinical and curricula

CODE Region

Attendees Form

NAME	UNIVERSITY	PHONE #	FAX #	E-MAIL ADDRESS
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Karen Gardner	UBC	604-822-3566	604-526-7998	drkg@interchange.ubc.ca
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Victoria Wallace	Ultradent, Inc.	888-261-9951		wvictoria@ultradent.com

CODE REGIONAL MEETING REPORT FORM

Alton, Illinois

Phone #:

REGION: II (Midwest)

LOCATION AND DATE OF MEETING

Southern Illinois University

September 20 - 21, 2004

CHAIRPERSON:

Name: Dr. Mark Belcher

Address: Southern Illinois University

2800 College Avenue

Alton, IL 62002-4700

Fax #: (618) 474-7150

E-mail: mbelche@siue.edu

(618) 474-7063

Allon, IL 02002-4700

List of Attendees: enclosed at end of Region II Meeting Report Information

Suggested Agenda Items for Next Year:

- 1. Ethics of Overtreatment:
 - A. Is unnecessary overtreatment by general practitioners a concern for you at this point of time?
 - B. What can we do in our curriculum to minimize the tendency to overtreat in our students as they graduate into future practitioners?
 - C. Do you feel that our students' attitudes are impacted by this significantly?
- 2. Longevity of Bonding Agents:
 - A. Clinical longevity of bonding agents for composites and amalgams?
 - B. Based on the literature, how long can we expect the bond to last in the mouth?

LOCATION & DATE OF NEXT REGIONAL MEETING:

Name:	Dr. Anthony Ziebert	Phone #:	414-228-3704
Address:	Marquette University	Fax #:	414-288-5752
	1801 W Wisconsin Avenue #336C	E-mail :	anthony.ziebert@marquette.edu
	Milwaukee, WI 53201-1881	Date:	Sept 19 - 20, 2005

Please return all completed enclosures to Dr. Larry D. Haisch, National Director, UNMC College of Dentistry; 40th and Holdrege Streets; Lincoln, NE 68583-0750. Deadline for return: <u>30 Days post-meeting</u> Office: 402 472-1290 Fax: 402 472-5290 E-mail: Ihaisch@unmc.edu Also send the information on a disk and via e-mail with all attachments. Please indicate the software program and version utilized for your reports.

2004 NATIONAL CODE AGENDA REGION II SUMMARY RESPONSES TO NATIONAL AGENDA

NO SUMMARY OF RESPONSES TO NATIONAL AGENDA RECEIVED

2004 NATIONAL CODE AGENDA REGION II RESPONSES

(Please cite the evidence were applicable)

Region II School Abbreviations:

COLO	University of Colorado	MINN	University of Minnesota
CRE	Creighton University	UMKC	University of Missouri-Kansas City
IOWA	University of Iowa	UNMC	University of Nebraska
MAN	University of Manitoba	SASK	University of Saskatchewan
MARQ	Marquette University	SIU	Southern Illinois University

I. If bases are used under composites, what materials are being used? (Examples: glass-ionomer, flowables).

What are the criteria or conditions used in making the decision to place a base?

- **COLO**: Only calcium hydroxide materials are used under composites as a liner. No true base is used. A calcium hydroxide base is used only if there is a definite or suspected pulp exposure. It would also be used for indirect pulp cap procedures.
- **CRE**: Bases are not routinely placed under composite restorations in order to make use of dentinal adhesion. If a base is used, it is for thermal protection, indirect pulp capping, or fluoride release.
- **IOWA**: Areas very close to the pulp; .5mm thickness and at least 1 mm from cavosurface margins
- **MAN**: Only used when cavities are very deep. Use Vitribond. Subjective, empirical decision but are particularly careful with proximal box of Class II situation
- MARQ: No response
- MINN: No response
- **UMKC**: Glass ionomer resins. Very seldom do we use a base under a resin composite. But when the caries is deep and close to the pulp, a liner may be chosen (thin layer of calcium hydroxide) followed by a resin ionomer base.
- **UNMC**: Glass ionomer cement (Vitrebond-3M). Deep caries and thin and/or weak remaining dentin floors.

- SASK: No response
- **SIU**: Only CaOH is used under composites, and that is when there is a pulp exposure. CaOH may stimulate reparative dentin, and is antibacterial. Placing a glass ionomer base adds several steps to the procedure and doesn't really add any benefits

What is the rational for using the specific material(s)?

- **COLO**: This material is selected based on the long-term historical evidence provided by many researchers and publications. This is still strong general support of this material in pulp management strategies.
- **CRE**: For use under composites, we use, almost exclusively, a resin-modified glass ionomer (Fuji II LC). We like the dentinal adhesion, fluoride release, and handling characteristics.
- **IOWA**: Biocompatibility and fluoride release.
- MAN: Availability
- MARQ: No response
- MINN: No response
- **UMKC**: Resin ionomer can act as a self etching material which will limit the amount of demineralizing of the dentin. This could be advantageous where etching of the dentin is undesirable such as deep dentin where demineralizing the dentin would leave too many open tubules resulting in an environment of much wetter dentin which is more difficult to hybridize using resin adhesives.
- **UNMC**: Fluoride release, sealing and strength properties.
- SASK: No response
- **SIU**: See statement for previous question

Is your school using self-etching bonding systems?

- COLO: No.
- **CRE**: The students are not using self-etching adhesives. The research department is using them in clinical studies.

- **IOWA**: We are not using self-etching bonding systems
- **MAN**: Not yet Post-op sensitivity has not been the problem with the use of glass ionomer liner, therefore not much benefit with self-etching system.
- MARQ: No response
- MINN: No response
- **UMKC**: No, but we are testing them and evaluating them using microtensile dentin bond strengths and Micro-Raman. Because other total etch bonding systems seem to perform better than the self etch systems we have not switched to the self etch systems.
- UNMC: No
- **SASK**: No response
- SIU: No

What system is used and what evidence was used in making this selection?

- COLO: N/A
- **CRE**: We have been using Prime & Bond NT (Dentsply) and Single Bond (3M). We are satisfied with the bond strengths to both enamel and dentin, especially as compared to the self-etching systems.
- **IOWA**: Evidence shows that the 3 step total etch systems are more effective over time than self-etch or 2 step total etch.
- MAN: Need more study and evidence
- MARQ: No response
- MINN: No response
- **UMKC**: Because we have only personally tested the microtensile bond strength of Clearfil SE and found it very acceptable when bonding to gingival and pulpal dentin in class II in-vitro restorations we would lean towards this material. Other one step or self etching systems have not shown to be effective in fully hybridizing etched dentin using Micro-Raman analysis. We are not convinced however that its bond strength to enamel is better than total etch systems.

UNMC: N/A

SASK: No response

SIU: N/A

What has been the outcome?

COLO: N/A

- **CRE**: From tracking the number of retreatments within our clinic, we are seeing less than 1% of retreatments for composite restorations. From that 1%, the majority of composite redos are Class 5 restorations.
- **IOWA**: We switched from Single Bond to Optibond
- MAN: No response
- MARQ: No response
- MINN: No response
- UMKC: No response
- UNMC: N/A
- **SASK**: No response
- SIU: N/A

II. Describe your school's warranty policy for direct and indirect restorations done in the student clinics.

Is there is a "no-charge for replacement" policy and how long would this usually be?

- **COLO**: There is no formal policy. We make the decision on a case-by-case basis. If the faculty believes the procedure is below standard then the restoration is generally replaced at no charge. Consideration is given for the known clinical longevity expectations of the material.
- **CRE**: These are evaluated on a case-by-case basis. There can be a "no-charge for replacement" process or even a pro-rated process.

- **IOWA**: Direct and Indirect restorations are guaranteed for one year with replacement at no charge. Prorated for the next year at 50%. Full fee after 2 years We are doing more repairs than in the past for direct restorations. Very limited basis for indirects (no guarantee with porcelain repair)
 - 1. Criteria includes: no evidence of recurrent caries or progression past area of repair.
 - 2. Low caries risk and activity
 - 3. Remaining restoration and tooth structure are sound
 - 4. Patient factors/ financial concerns
- **MAN**: We do not have a specific policy, but provide reasonable assurance to the patients by the discretion of the instructor or director of the clinics.
- MARQ: No response
- MINN: No response
- **UMKC**: Failure from 0-12 months = no fee to the patient; 1-2 years 25% of the fee; 2-3 years 50% of the fee; 3-4 years 75% of the fee; beyond 4 years = total fee.
- **UNMC**: No specific policy, only a case-by-case evaluation.
- **SASK**: No Response
- **SIU**: Generally a 1 year warranty. Exceptions to this are at the discretion of the instructors and the director of the clinic

Describe your repair vs. replacement philosophy in student clinics for direct and indirect restorations. Provide some guidelines - indications or contraindications for repair vs. replacement. Are there differences between amalgams and composites?

- **COLO**: There is no formal policy. See answer above. The UCSD has developed formal evidence base criteria for repair versus document. In general, every effort is made to repair a restoration before replacement is done.
- **CRE**: These are evaluated individually. Accessible composite margins can most always be repaired, and we like to employ a micro-etcher during the repair preparation. Poor proximal contact may necessitate prepping into the existing composite restoration, micro-etching, and restoring. Accessible margins on a large amalgam may be best suited for repair. Inadequate proximal contact may best be restored by prepping into the restoration, and restoring. Small amalgams can more easily be replaced totally.
- **IOWA**: No response

- MAN: See answer to previous question.
- MARQ: No response
- MINN: No response
- UMKC: If the caries can be removed and the resulting area around the caries is sound tooth structure then we would repair the restoration. If retention of the restoration is not compromised then we also would lean towards repair. Our default mode of operation is to repair before replacing a restoration. If replacing the restoration would likely result in removing more dentin and creeping closer to the pulp and limiting the lifespan of the tooth then repairing is highly considered. If contact is difficult to achieve or if the amalgam or tooth has fractured and there are no caries then we would especially lean towards repairing. If a single unit crown was going to be placed over an amalgam then we would lean toward repairing. If a multiple unit bridge was going to be placed then we would lean toward replacing the restoration. We tend to find more recurrent caries under old composites than we do under old amalgams. So there would be a bias towards replacing composites and repairing amalgams since placing composites and obtaining good contacts and a good bond to dentin using composite is more difficult. We don't trust the integrity of the bond of composite to the dentin in failed composite restorations.
- **UNMC**: Repair: limited marginal discrepancies or decay that is readily accessible. Replace: restorations with multiple discrepancies, color mismatch of anterior composites or teeth that require a restoration that will be a foundation for a prosthodontic procedure.
- SASK: No Response
- **SIU**: Considerations would involve how long the restoration has been in place, the extent and nature of the defect, and the limitations of the material to be used.

How does your school handle remakes of clinically unacceptable Board restorations that your graduates or other candidates do on school patients of record?

- **COLO**: We take care of the patient. Whatever needs to be done we do. While we are not pleased with having to "clean-up" after boards we believe caring for the patients is the right thing to do.
- **CRE**: The school representative at the board exam, tracks these cases, and the responsible student replaces the restoration at no cost to the patient.
- **IOWA**: Our school does remakes for Board patients at no charge in our undergraduate clinics if possible or by grads or faculty if needed.

- MAN: See answer to previous question
- MARQ: No response
- MINN: No response
- **UMKC**: We would treat the patient at no cost.
- **UNMC**: Replace at no cost to patient.
- SASK: No Response
- **SIU**: We will do the remakes for our clinic patients. Outside candidates must arrange for their own remakes in the private sector.

III. Some faculty of dental schools would like to see the use of some form of electronic patient record with the patient's photo as well as pre-treatment intra-oral photographs included in the record. Does your school use an electronic patient record , and if so, are these items included?

- **COLO**: We do not currently have an electronic patient record but anticipate doing so in the very near future. If an electronic patient record is developed it will contain patient photos.
- **CRE**: We did consider the electronic patient record that is being used at UMKC. Although, the software is thorough and comprehensive, it didn't quite fit our needs at Creighton. We have been using a software program for clinical procedures and accounting from GSD called Quick Recovery. The company is being bought by another company. The new company has a software dental program that includes an electronic record. They will present their product to our dental school in October of this year. The name of the company (or software, or both) is Software of Excellence. Some of their customers include UCLA, Case Western Reserve, Temple, National University of Singapore, University of Melbourne, Edinburgh Dental Institute (Scotland), Kuwait University, Children's Hospital and Health Center (San Diego).
- **IOWA**: Our school is working towards an electronic patient record but there are considerable challenges and we have established priorities.
 - Currently our patient demographics, treatment planning, visit slips and billing are electronic.
 - The next phase is to have the entire patient record (Med Hx, CRT, charting and radiographs) in electronic form.
- MAN: Not yet

- MARQ: No response
- MINN: No response
- **UMKC**: Yes we use an electronic record and are in the process of incorporating the patient's photo and intra-oral photographs in the record. They would have to be stored however on a different server because of the size of the photos.
- UNMC: No
- SASK: No response
- **SIU**: We are in the process of developing a computerized patient record system.

What type of radiographic record does your school use - conventional radiograph or digital? Both?

- **COLO**: We use conventional now but will be changing to all digital in about one year.
- **CRE**: Mostly conventional. The Schick digital x-ray system is used in endo clinic for those professors that prefer it over conventional radiography. We tried the Trophy system in pedo with limited success. Currently, we keep the Trophy system for demo purposes, as well as, the Gendex system.
- **IOWA**: Our school primarily uses conventional radiographs (high speed E film). Digital imaging is used routinely in Endo and Oral Surgery.
- MAN: Conventional
- MARQ: No response
- MINN: No response
- **UMKC**: We only use digital radiographs. Conventional radiographs are taken if state board exams require them.
- **UNMC**: Both, digital radiographs limited to endodontic procedures.
- SASK: No response
- SIU: Conventional

If digital x-rays are used, what are the legalities involved and how do you deal with them?

- **COLO**: No different than any other patient record. The full HIPPA compliance will be done.
- **CRE**: The digital x-rays that are taken in the endodontic clinic are stored on the computer that captures the image. They are not backed up on another computer, or stored in an electronic patient record. This condition is less than ideal.
- **IOWA**: Legal issues are similar to those of conventional radiographs.
 - HIPPA regulations must be followed
 - Digitals must be Dicom comformant: can't change or replace image
 - International standards have been developed for digital images. Our school is working towards an electronic patient record, but there are considerable challenges and we have established priorities.
- MAN: No response
- MARQ: No response
- MINN: No response
- **UMKC**: Backups are made and stored on DVD's. In cases where the legality of the x-rays have been challenged in court, producing dated backups on the DVD's have been sufficient.
- **UNMC**: None noted
- SASK: No response
- SIU: No response
- IV. With the use of higher speed x-ray film, dental decay is becoming more difficult to see on radiographs. Discuss your school's use of film and the rationale for doing so.
 - **COLO**: We use high-speed E film for all procedures and are comfortable with it. We believe that we are able to adequately evaluate radiographic evidence of caries on this film
 - **CRE**: We are using D speed film. Our Radiology section has tried E & F speed film without acceptable levels of contrast in the result.

- **IOWA**: Our school uses high speed E film for patient safety and standard of care compliance. Emphasis is on radiographic exposure, processing and interpretation under ideal conditions: proper exposure, developing, viewing in a dark room under magnification, with good view box lighting and framed in black cardboard.
- MAN: No response
- MARQ: No response
- MINN: No response
- **UMKC**: We don't use dental film anymore.
- **UNMC**: F speed film used to limit dental patient's exposure to radiation.
- **SASK**: No response
- **SUI**: We use "F" speed film routinely. We will use "D" speed to try and better identify board lesions.

V. Is your school using electric handpieces?

- **COLO**: Not at this time, but we will be switching to electric handpieces in about one year.
- CRE: Yes, on a limited basis.
- **IOWA**: Electric handpieces are not being used by students. Faculty are evaluating some on a limited basis.
- MAN: Don't use
- MARQ: No response
- MINN: No response
- **UMKC**: Don't use
- UNMC: No
- SASK: No response

SIU: Not currently using them

What make?

(Responses only from schools currently using or planning on using electric handpieces)

COLO: Not decided

CRE: NSK

Where are they being used?

(Responses only from schools currently using or planning on using electric handpieces)

- **COLO**: They will be used in pre-clinic and clinic areas.
- **CRE**: They are being used in the Research Laboratory. They had been used in the Faculty Practice, however, the company only provided 1 handpiece at no cost, and the director of the practice was hoping for 3 handpieces to outfit 3 operatories.

Describe/discuss the pros and cons of the handpieces.

(Responses only from schools currently using or planning on using electric handpieces)

- **COLO**: Biggest pro is high torque at low speed and steady cutting. Biggest con is weight of the handpiece.
- **CRE**: The review from the dentists was very favorable: quiet with a consistent 200,000 rpms and no loss of torque
- **IOWA**: Pros are they are quiet, less vibration. Cons are expense.

VI. Do you use the "Smart-Prep System" (SS White) of rotary instruments for selective dentin removal in student clinics?

- **COLO**: Don't use
- CRE: No
- **IOWA**: No, we do not use Smart Prep Systems.
- MAN: Don't use
- MARQ: No response

MINN: No response

- UMKC: Don't use
- **UNMC**: Don't use.
- **SASK**: No response
- SIU: Don't use

Describe how often it is used, what your indications are and give technique details if different from the manufacturer's instructions. What is your opinion of these instruments.

- **CRE**: Without seeing any investigative information about this system except for printed ads, my gut reaction is: another example of Americans shirking responsibilities from themselves. "It's not my fault that the tooth was not operated on correctly; it is the failure of the Smart-Prep System that is responsible."
- **IOWA**: The thought is the burs are easily dulled by hard tooth structure (enamel or dentin) and the saying is that "the Smart Prep can be readily defeated by the dumb operator...."
- VII. Often it is difficult to obtain suitable patients for student needs. They seem to be either too easy or too difficult. The teeth either have incipient dental caries or are grossly decayed.

Does your school have difficulties in acquiring suitable patients/conditions for students?

- **COLO**: Not too difficult for UCSD. Generally, our patients are too difficult rather than easy. We have changed our philosophy of treating incipient lesions from surgical to non-surgical healing and repair. Fixed Prosthodontics seems to be the most difficult area. This is a combination of suitable procedures and affordability.
- **CRE**: Creighton University's Dental School is situated centrally in a highly populated urban area, and as a result, we enjoy an assortment of diverse dental patients and conditions.
- **IOWA**: It is increasingly difficult to recruit patients appropriate to students' skill level

- **MAN**: With relatively small class sizes, we have adequate patient supply. Some disciplines spend additional effort looking for a suitable teaching case
- MARQ: No response
- MINN: No response
- **UMKC**: No. We have more patients than we can treat. We have waiting lists.
- UNMC: No
- SASK: No response
- **SIU**: We currently have an excellent supply of patients. Our students have patients from the pediatric age group to the elderly.

If so, how do you deal with this problem?

- **COLO**: We do not require specific procedures and have developed alternative equivalents. The question is always what you think a student must be able to do to be competent and what do you have them do to determine that. Specific requirements may not always be the best method of competence determination.
- **IOWA**: Increasing number of complex and or rampant caries patients:
 - Distinguish between simple and complex patient for proper referral
 - Phase I Disease control and then final treatment plan
 - Upgrade curriculum to deal with complex patients:
 - Instituted RCCP pilot program in the Undergraduate clinic.
 - Advertising to University employees, incoming students, Web sight
- VIII. Board examinations tend to require traditional tooth preparations and restorations. There is a decrease in the number of teeth requiring these types of preparations and an increase in smaller lesions requiring more conservative treatment. Is this a problem at your school or for your students doing Board Examinations?
 - COLO: Yes
 - **CRE**: Preparations that are practiced everywhere else in the dental world.
 - **IOWA**: Discrepancy between board requirements and current philosophy of prevention and defect specific cavity preparation is becoming a growing problem.

MAN: No response

- MARQ: No response
- MINN: No response
- **UMKC**: It seems to be more difficult to obtain the class III lesion.
- UNMC: Yes, "ideal" lesions are difficult to find
- SASK: No response
- SIU: No

Has there been any attempt to discuss the problem with the Licensure Board?

- COLO: Yes
- CRE: Yes
- **IOWA**: Dr. Adu Sarkodie was our representative for CRDTS examination revisions. She appealed to CRDTS to include Class II composite slot preps.
- MAN: No response
- MARQ: No response
- MINN: No response
- UMKC: Yes
- UNMC: No
- SASK: No response
- SIU: No

What attempt was made and what was the outcome?

- **COLO**: Our liaison has taken our concerns to the boards. We have written letters. There have been some changes in the examination conditions and the evaluation criteria, however, there is still a major problem with the boards testing properly to determine competence and to treat patients properly.
- **CRE**: In January of 2004, the Region 2 Director of CODE surveyed, via email, all of the representative schools within the region. Responses were recorded from virtually every school within the region, and even schools from outside the region chimed in. All responses favored the option for a slot preparation to be made available for Board Examination purposes.

In February of 2004, the Region 2 Director then contacted the Chair of the Exam Review Committee for CRDTS. The Chair gave assurances that CRDTS is considering a posterior composite for 2005, and that it would be discussed at the March annual meeting. He also requested published research articles supporting the slot prep design and longevity. These articles were forwarded to the Chair, who in turn forwarded them to the Restorative Subcommittee Chair. There is no indication that the subject was discussed at the March meeting. The Chair of the Exam Review Committee assured me that CRDTS would "be discussing the exam changes at length in August" and that "the decision will be made in the August ERC meeting".

At the August CRTDS meeting, discussion turned to a Part 3 National Board Exam. The development of the Part 3 national clinical exam has precluded CRDTS from deciding upon the slot prep. "The slot prep is being looked at in the development of the national exam."

- **IOWA**: Dr. Adu Sarkodie was our representative for CRDTS examination revisions. She appealed to CRDTS to include Class II composite slot preps
- MAN: No response
- MARQ: No response
- MINN: No response
- **UMKC**: Because the criteria for evaluating the preparations is so different than traditional GV Black criteria, the boards have been reluctant to allow defect specific preparations or slot preparations to date.
- **UNMC**: No response
- SASK: No response
- SIU: N/A

What recommendations would you make for improving communication with the Boards?

- **COLO**: There should be regular meetings with dental school restorative dentistry faculty representatives and the test construction committees of the testing agencies to discuss contemporary, evidence-based practice of dentistry and how dental schools are teaching this practice.
- **CRE**: I don't know. I am not sure who formally interacts with the Boards right now: AADE? ADA? I would like CODE to be able to formally interact by having some representation at their discussion and planning meetings.
- **IOWA**: Improve communication through involvement of academics on Regional Boards. More interaction between dental schools and Examiners. Faculty observe Regional Board calibration and examination sessions.
- MAN: No response
- MARQ: No response
- MINN: No response
- **UMKC**: Invite board examiners to the CODE meetings. Publish more minimally invasive dentistry articles in the Journal of Operative Dentistry and send a complimentary copy to the people at the state and regional boards. Sponsor a conference on board examinations and invite examiners and experts in the field of restorative dentistry.
- **UNMC**: No response
- **SASK**: No response
- **SIU**: Have representatives from the board exams come to part of the CODE meetings

Regional CODE Agenda - summary of discussion

- 1. Good discussion regarding Class II amalgam preparation for the CRDTS Regional Boards - statement prepared by Dr. Cobb and revised/commented upon by all. Sent to CRDTS president.
- 2. Very good discussion regrading base/liner materials and their uses.

Suggestions for CODE.

What can the organization do to improve its effectiveness?

What is suggested to improve the Web site?

http://netserv.unmc.edu/code/codeFrame.html

Other suggestions?

Suggested topics for Next Year's C.O.D.E. Agenda:

- 1. Ethics of Overtreatment:
 - A. Is unnecessary overtreatment by general practitioners a concern for you at this pint of time?
 - B. What can we do in our curriculum to minimize the tendency to overtreat in our students as they graduate into future practitioners?
 - C. Do you feel that our students' attitudes are impacted by this significantly?
- 2. Longevity of Bonding Agents:
 - A. Clinical longevity of bonding agents for composites and amalgams?
 - B. Based on the literature, how long can we expect the bond to last in the mouth?

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CODE REGIONAL MEETING REPORT FORM

REGION: III - South Midwest

LOCATION AND DATE OF MEETING:

Louisiana State University School of Dentistry

October 7 - 8, 2004

CHAIRPERSON:

Name:	Dr. Alan H. Ripps	Phone #: (504) 619-8543
Address:	LSU	Fax #: (504) 619-8549
	1100 Florida Avenue, Box 137	E-mail: aripps@lsuhsc.edu
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New Orleans, LA

List of Attendees: enclosed at end of Region III Meeting Report Information

Suggested Agenda Items for Next Year:

- Computerization of Operative Dentistry Education
- Laptop computers
- Does your school utilize computer based training (ex. books on CD, laptop computers or PDAs required for all students)? If the answer is yes, what has been your experience with these systems?
- Is there interest in modified 212 and "106" rubber dam clamp prototypes?

LOCATION & DATE OF NEXT REGIONAL MEETING:

Name:	Dr. Jerry Nicholson	Phone #:	(210) 567-3690	
Address:	University of Texas- San Antonio	Fax #:	(210) 567-6354	
	7703 Floyd Curl Drive	E-mail :	nicholson@uthsca.edu	
	San Antonio, TX 78229	Date:	ТВА	
	Please return all completed enclosures to Dr. Larry D. Haisch, National Director, UNMC College of Dentistry; 40 th and Holdrege Streets; Lincoln, NE 68583-0750. Deadline for return: <u>30 Days post-meeting</u>			
	Also send the information on a disk and via e-mail with all attachments. Please indicate the software program and version utilized for your reports.			
	Ch. 3	Pg. 1	ARD\Staff\LDH\\CODE\Code2004Manual	

2004 NATIONAL CODE AGENDA REGION III SUMMARY RESPONSES TO NATIONAL AGENDA

I. If bases are used under composites, what materials are being used? (Examples: glass-ionomer, flowables).

The consensus of the group, felt materials whether a base or liner is placed is determined by the need for an indirect pulp capping procedure. Flowable resins were not used and were discourage since there is no evidence supporting them. The criteria or conditions that require a decision to place a base would be when a preparation extends close to the pulp, a layer of RMGI would be inserted. This material better seals the surface of the preparation. The use of calcium hydroxide place before bonding agents and resin restoration was discussed and the feeling of the group. Most of the schools are not using self-etching bonding systems. The U of Tenn uses them for cementation of fiber posts and U Texas in Houston uses both systems. U of Tenn is using Optobond Solo Plus because of research done at their school. U Texas in Houston is using Clearfil SE Bond because of research at their school.

II. Describe your school's warranty policy for direct and indirect restorations done in the student clinics.

No school in the region has a written warranty policy. However, most schools will replace restorations within a one year period at no charge. Baylor mentioned a two year period. All schools agree that what is in the patients best interest is the deciding factor in repair vs. replacement philosophy There was no automatic replacement if repairs would work in that situation. Most schools repair or replace restorations placed during state board exam. In Louisiana the state board assumed all responsibility and arrange to pay for any remakes. Oklahoma only serviced restorations if the applicant was a graduate of their school.

III. Some faculty of dental schools would like to see the use of some form of electronic patient record with the patient's photo as well as pre-treatment intra-oral photographs included in the record. Does your school use an electronic patient record , and if so, are these items included?

Baylor is the only school that is keeping electronic patient records. They also maintain a written record as well. Most schools are not using digital radiographic records. Mississippi uses them only in Endodontic areas and may increase usage later. San Antonio and Baylor have digital panorex capability. LSU uses digital in Endo and Oral Surgery post grad programs. None of the schools have dealt with legalities with digital x-rays and refer to their attorneys.

IV. With the use of higher speed x-ray film, dental decay is becoming more difficult to see on radiographs. Discuss your school's use of film and the rationale for doing so.

LSU and Baylor use the D film. The other schools use the faster film. Some mentioned that at state board time the slower D film was used more to show lesions.

V. Is your school using electric handpieces?

None of the schools use them for everyday work. They're usually in a research clinic or very limited situations not in student clinics

VI. Do you use the "Smart-Prep System" (SS White) of rotary instruments for selective dentin removal in student clinics?

None of the schools use them although several faculty have tried them.

VII. Often it is difficult to obtain suitable patients for student needs. They seem to be either too easy or too difficult. The teeth either have incipient dental caries or are grossly decayed.

All schools mentioned the difficulty in finding ideal lesions for the students. Some schools are increasing the number of patients screened so more can be found. Another method is to allow patients to be moved from student to student. One schools encourages treating less than ideal lesions for exams.

VIII. Board examinations tend to require traditional tooth preparations and restorations. There is a decrease in the number of teeth requiring these types of preparations and an increase in smaller lesions requiring more conservative treatment.

All schools seem to have this fear, but it always ends up with enough patients. All but one school stated they have much contact and discussions with their state boards. The state boards have all been attentive to their needs and figure this into their calibrations. All schools wish to maintain an open dialogue with their boards.

2004 NATIONAL CODE AGENDA REGION 3 RESPONSES

(Please cite the evidence were applicable)

Region III School Abbreviations:

BAY	Baylor University	TENN	University of Tennessee	
LSU	Louisiana State	UTSA	University of Texas-San Antonio	
MISS	University of Mississippi	UTH	University of Texas-Houston	
	OKLA	University of Oklahoma		

I. If bases are used under composites, what materials are being used? (Examples: glass-ionomer, flowables).

- **BAY**: Either resin modified glass ionomer or glass ionomer alone may be used as a base. At times calcium hydroxide covered by RMGI or glass ionomer is used.
- **LSU**: 1. After pulp capping with calcium hydroxide resin-modified glass ionomer (Vitrebond) is place over calcium hydroxide liner for added seal.
 - Class II restorations routinely done with resin-based composite only --other alternative includes:

Resin-modified glass ionomer (Fuji II LC) in the gingival portion of the proximal box – open sandwich

- **MISS**: Some faculty prefer to use Synergy Flow, Esthet X Flow under deep restorations, other faculty prefer- resin modified GI (GC- L.C. liner). We do not intentionally allow the GIC to extend to the gingival cavosurface margin in the proximal box, however this may happen in some cases. Under large composite build-ups more likely to use Fuji IX. To fill in large areas or missing walls of a build-up also use Fuji IX.
- **OKLA**: We are currently using resin-modified glass ionomer cement as a liner beneath resin composite restorations.
- **TENN**: Using the definition of a base, as given by McCoy, (1995), we do not routinely place bases under composites at UT.
- **UTSA**: The theoretical benchtop advantages to flowables are not present when the restorations are stressed. There is no clinical data in favor of flowables. The physical properties of flowables are inferior to hybrid composites. Therefore we discourage flowable use at this time. Indirect pulp caps are done with Dycal, Vitrebond, SBMP, Composite.

UTH: Calcium hydroxide (low strength base/liner); glass-ionomers; resin-modified glass-ionomers; flowable composites

What are the criteria or conditions used in making the decision to place a base?

- **BAY:** Only when the composite restoration will be in close proximity to the pulp is a base used. In the case of a non-carious pulp exposure requiring a direct pulp cap, calcium hydroxide is placed to assist with reparative dentin formation then covered by a thin layer of RMGI or glass ionomer. In the case of an indirect pulp cap, a calcium hydroxide liner covered by a thin layer of RMGI or glass ionomer is placed as a base under the composite restoration. The conventional glass ionomer or RMGI base should not exceed .5mm in thickness.
- **LSU**: 1. After pulp capping with calcium hydroxide
 - 2. Difficulty in isolation may indicate VLC resin-modified glass ionomer base
 - 3. High caries risk may indicate use of VLC resin-modified glass ionomer base
- **MISS**: Proximity to pulp; potential for sensitivity (thermal insulation); size of restoration; amount of decay present/need for fluoride release.
- **OKLA**: Generally it is used when the preparation is estimated to approach within 0.5 mm of the pulp to cover a small increment of calcium hydroxide placed over the deepest area. A resin-modified glass ionomer cement is used to seal and protect the weak calcium hydroxide material during placement of the restorative material.
- **TENN**: Not applicable, as stated previously, bases are not used.
- **UTSA**: Operative Dentistry does not use bases except for endodontic access closures over-sealed with bonded resin composite. Liners are used as pulp caps with deep caries on confirmed vital teeth without radiographic or symptomatic indications of irreversible pulpitis. We do not presently teach the use of the sandwich technique for subgingival or very high risk patients using glass-ionomer as a liner under amalgam or resin composite restorative materials.
- **UTH**: Liners/bases are considered when the cavity preparation is estimated to be approximately 0.5 mm from the pulpal tissues and/or when, in the clinical judgment of the faculty and student, placement of a liner/base will help to ensure clinical success of the procedure. Factors to be considered would include the depth of the cavity preparation and/or caries risk concerns. Secondarily, any adverse patient reaction(s) to previous restorative procedures (post-operative sensitivity) may suggest to some the need to place a liner/base. Bases are placed in accordance with the minimum basing concept. With a lining cement (low strength base), the minimum thickness necessary is used, usually less than 0.5 mm. High strength bases are placed in to a thickness between 0.5 to 0.75 mm.

What is the rational for using the specific material(s)?

BAY: The literature supports the premise that calcium hydroxide when placed in close proximity to the pulp or as a direct pulp capping agent will stimulate reparative dentin formation and afford the tooth in question the best chance for continued pulpal vitality. The literature also shows that calcium hydroxide when left uncovered can dissolve leaving a void under the restoration should microleakage of the final restoration occur. RMGI or glass ionomer is placed over the calcium hydroxide to protect it from the effects of microleakage.

	Vital nuln therany effectiveness of treatment					
Reference	Technique&Material	Number of teeth	Success			
12.	Indirect pulp cap- Dycal	36 teeth	100%			
	Indirect pulp cap- Improved Dycal	67 teeth	100%			
13	Direct -Calcium hydroxide	130 teeth	87% mean 11.7 yrs. (5-22 yrs)			
14.	Direct- CaOH paste with Ringers	81 teeth permanent teeth evaluated Histologically & clinically.	62% success at recall > 2 yr. For most teeth.			
		124 teeth clinical evaluation only	86% success rate			
15.	Direct-Ca(OH)2 and sterile water	20 teeth	80% success, 2 years clinical and radiographic evaluation.			
1.	Direct- Calcium hydroxide ZOE or ZnPo4 cement and restoration.	510 teeth Exposures- 70% cavity preparations, 15% carious, 15% unknown	82% 5 yr survival rate.			
16.	Direct-10% hypochlorite- 4 minutes. Clearfil Photo Bond.	64 Human permanent.	60/64(94%) exposures successful after 18 mos			
11.	Partial pulpotomy. Vital pulps with fractures.	30 incisors	100% success. 8 years			
17.	Partial pulpotomy treated fractures and calcium hydroxide dressing.	60 incisors. treated due to trauma.	98%, success at 31 mos, no clinical or radiographic signs			

LSU:	Dycal – Bactericidal	Vitrebond – Seal, Strength	SBMP – seal	
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MISS: GIC- seals dentin, less microleakage/time tested/ bonds to composite/ thermal conductivity same as dentin/fluoride release/ anti -bacterial properties(*I. Eli and others, J Prosthodontics, 1995*). Light cure glass ionomer liner up to cavosurface margins in class II restorations resulted in less microleakage (*J of Clinical Pediatric dentistry 1996, fall*).

Glass ionomer lined class II restorations exhibited significantly less microleakage than did restorations without G.I. liner (Ketac-Bond) (*J of prosthetic Dentistry Jan. 1989-Hembree,J.*)

The resin-modified glass ionomer cement demonstrated significantly less microleakage than the use of a dentin bonding agent alone or in combination with flowable composite, flowable compomer, or autopolymerizing composite). This study supports the use of the glass ionomer open sandwich technique in deep Class II direct composite restorations. (*Gen Dent. Sept.–Oct 2001)- Hagge, MS., Simon, JF. and others.*)

Flowable composite- less viscous material flows into irregularities of internal cavity walls and proximal boxes therefore results in less leakage and less postop sensitivity (*Bayne 1998; Leinfelder and Prasad 1998, the Dental Advisor, 1999*). Flowable liners help reduce microleakage in all composite restorations at cervical margins but does not eliminate it –(*Leevailoj and others, 2001*). The use of flowable composite as a first increment in the proximal boxes decreased microleakage as compared to using hybrid composite alone (*Peutzfeldt and Asmussen 2002*). A thinner application of flowable composite restorations. Thinner layer may also relieve polymerization stresses of posterior composite while thicker layer may be affected by polymerization shrinkage.(*Chuang,SF. and others, Journal of Operative Dentistry, May-June 2004*)

- **OKLA**: 1. Biocompatibility
 - 2. Provides a good seal to protect against microleakage
 - 3. Provides a strong material to prevent dislodgement of the calcium hydroxide layer during composite insertion
 - 4. Release of fluoride
- TENN: Not Applicable
- **UTSA**: A literature search supports use of Dycal over the dentin in deep preparations. Vitrebond prevents the phosphoric acid etch from dissolving Dycal which can contaminate the margins.
- **UTH**: For composite restorations, calcium hydroxide with or without a resin-modified glass-ionomer overlay is considered when the cavity preparation is estimated to be approximately 0.5 mm from pulpal tissues. The sandwich technique (open or closed) of cavity restoration may be considered when restoring proximal areas. Flowable composite or glass-ionomer is placed as the first increment to ensure complete restorative material adaptation to cavity walls and to help ensure an adequate seal of the gingival areas and cavosurface margins. The flexural moduli of the flowable composite may also help to reduce polymerization stress on the bonding interface between the composite and tooth structure. Glass-ionomers or resin-modified glass-ionomers may be helpful when addressing caries risk concerns and may also be used in situations where inadequate isolation would lead to bonding agent contamination (precluding composite bonding).

Is your school using self-etching bonding systems?

- BAY: No
- **LSU**: Currently, we are not using self-etching bonding systems in Operative Dentistry. However, the Orthodontic Department has been using Transhold Plus Selfetching Primer (Unitek) for three years with excellent success.
- MISS: No
- OKLA: No
- **TENN**: Yes, currently for the cementation of fiber posts.
- UTSA: No
- UTH: Yes

What system is used and what evidence was used in making this selection?

- **BAY:** Not Applicable
- **LSU**: The Orthodontic Department did not cite any evidence for adoption of this system.
- **MISS**: We use Prime & Bond NT- Total Etch, we have not encountered any problems with any of the single bottle Prime& Bond products such as 2.1 before, however we are using the unidose system and avoid the evaporation problems with not recapping the bottle.
- **OKLA**: We have been using a 4th generation bonding agent for many years now (Allbond 2, Bisco). We are considering changing to Bisco's 5th generation One-Step Plus. We will continue to use the total etch technique, although Bisco's Tyrian SPE (self-priming etchant) seems to have good success. We wish to change to a product that allows us to provide better infection control (unit-dose) and better control the quality of each application of the material (no bottles of primer left open for thirty minutes on the instrument tray).
- **TENN:** Optibond Solo Plus SE from initial bond strength studies done at UT (*Shear Bond Strengths for Five Self Etching Dentin Adhesive Systems, J. Coleman, W. G. de Rijk. M.W. Lewis, IADR, AADR, CADR, 82nd General Session, Abstract*). SBS achieved were 33.5 MPa (SD 8.1), which were comparable with results reported in Reality 2004, but slightly lower than CRA Report Nov/Dec 2003. Shear bond strength studies at UT were measured with the "Hollow Notch Method (Ultradent Products Inc.) using an Instron 5567 testing machine. We were looking for a unidose and simple to use system for the students. The rationale was to have a bonding system that eliminated the potential errors of over/under etching and over/under drying of the dentin, thereby, decreasing post op sensitivity and attaining adequate bond strengths.
- UTSA: No response
- **UTH**: ClearFil SE Bond (Kuraray America) This selection is based upon bonding studies of this product performed here at the Dental Branch.
 - Kaaden C. Powers JM. Friedl KH. Schmalz G. Bond strength of self-etching adhesives to dental hard tissues. Clinical Oral Investigations. 6(3):155-60, 2002 Sep.
 - O'Keefe KL. Powers JM. Adhesion of resin composite core materials to dentin. International Journal of Prosthodontics. 14(5):451-6, 2001 Sep-Oct.

What has been the outcome?

- **BAY**: Not Applicable
- **LSU**: The Orthodontic Department is well-pleased with the results of the self-etching bonding system.
- **MISS**: Good results with P&B NT , user friendly with unidose; only have had a few adhesive failures and very few sensitivity problems.
- **OKLA**: We have no formal clinical study ongoing to support the success of this technique. The everyday clinical evidence would indicate this method to be effective.
- **TENN:** Initial results were good, however, further studies did not have as good bond strengths. Recent research utilizing Optibond Solo Plus SE could not obtain SBS values higher than 3 MPa. We are currently evaluating Coltene-Whaledent's One Coat SE Bond and preliminary results look good (25 MPa (SD 5).
- UTSA: No response
- **UTH:** Bonding technique is simplified using this system. Post-operative problems such as sensitivity and/or bond failure have not been observed with this product (up to this point).

II. Describe your school's warranty policy for direct and indirect restorations done in the student clinics.

- **BAY**: See next question
- **LSU**: Any restorations placed within one year are not charged for replacement if indicated by the clinic faculty. Effort is made to have the student who placed the restoration be responsible for the replacement. The student will not receive credit for this restoration toward his requirements.
- **MISS**: See next question
- OKLA: No response
- **TENN**: University of Tennessee does not advocate or have a warranty policy as it applies to dental treatment.
- **UTSA**: There is no specific warranty policy for either direct or indirect restorations done in the student clinics.
- **UTH**: No formal (written) policy. Situations are reviewed on a case by case basis.

Is there is a "no-charge for replacement" policy and how long would this usually be?

- **BAY**: Our restorations are warranted for a period of two years.
- LSU: One year
- MISS: For Direct Restorations: We will replace at no charge for up to one year of original restoration placement.
 For Indirect Restorations: This is determined on a case by case basis. Usually, if there is a problem that appears to be our fault or with the lab, we will replace at no charge for up to one year. After one year any problems are dealt with on an individual basis with the dept. chair evaluating problem along with the Pt. Care Coordinator. With recurrent decay or failure not due to lab or clinician error, there will be a new charge.
- **OKLA**: Generally, we replace restorations at no charge if they fail within the first year.
- **TENN**: Informally there is, and it is at the discretion of the faculty. The period of time is determined on a case by case basis, as a rule of thumb one year. The rationale is to avoid having a "policy" that could be interpreted as being a "warranty".

- **UTSA**: The school provides a "no charge for replacement" opportunity for patients if in the judgment of the attending faculty, it would be appropriate.
- **UTH**: No formal (written) policy. Situations are reviewed on a case- by-case basis. The clinical judgment of the faculty weighs heavily in the decision to replace restorations at no-charge. The clinical situation, material performance, caries (initial/recurrent), quality of care, and patient compliance (if applicable) are some aspects considered. In general, replacement procedures are usually considered if the failure/concern occurred within a year after placement, depending upon the clinical situation and suspected/verified reason(s) for failure.

Describe your repair vs. replacement philosophy in student clinics for direct and indirect restorations. Provide some guidelines - indications or contraindications for repair vs. replacement. Are there differences between amalgams and composites?

- **BAY**: Our policy on replacement vs. repair is dependent on the situation and the faculty overseeing the procedure. In general, the restoration is usually replaced. In the case of a cast gold restoration with a faulty margin, the general consensus is that if the margin is easily accessible and no larger than an area of approximately 1.0 mm, it may be repaired with amalgam. This assumes that proper moisture control is possible. In the case of fractured porcelain, the restoration is replaced never repaired. In the case of direct restorations, amalgam restorations are replaced rather than repaired, most of the time, at the discretion of the attending faculty member. Composite restorations may be replaced or repaired depending on the size and location of the defect and again at the discretion of the attending faculty.
- **LSU:** To a large part, this decision is up to the clinical faculty covering that procedure. To be conservative in the treatment of our patients we have to decide whether repair or replacement is best for that patient. We do allow repairs of defective restorations. Indirect restorations are remade. Over all more composites are replaced more than amalgam restorations. Our school does many composite restorations. According to our clinic director more composites are replaced in the senior program than in the third year.

Survival of Repaired Amalgam and Recemented Crowns

- Amalgam
 - (609) placed 78% @5y 63%@ 10yr.
 - Repaired (24)76%@5y 37%@10yr.
- Crown
 - 264 cemented 83% @5y 73%@ 10yr.
 - 14 recem 56% @5y 42%@ 10yr.
 Smales et al Oper Dent 29:249, 2004.

MISS: <u>Amalgam</u>-

- A) Repair if at all possible for the larger restorations as long as most of the restoration is serviceable and intact such as replace one box of an existing MOD amalgam. Repair voids if possible that are greater than .3mm in diameter especially at margin or in the proximal box area if accessible. Significant ditching > .3 -.5 mm ,difficult to clean or jeopardizing strength of restoration then need to repair or replace(isolated-repair, more than a few areas then consider replacement) Determined by judgment of clinical faculty evaluating.
- B) Replacement for any fractures or significantly ditched margins deeper than .5 mm or more. Replace or correct overhangs when causing problems. Replace if open proximal contacts have or if contact can be restored with new restoration. Many of these are determined by the clinical judgment of the faculty member covering the clinic that day.

Composite-

- A) Repair along deeper marginal staining areas if not determined to be carious or resurface with polishing and finishing instruments if only superficial staining is present.
- B) Replacement if there is generalized recurrent decay or complete discoloration of the restoration and patient is unhappy with the appearance.

Indirect restorations -

Repair if possible with isolated defective margin due to cement wash out, recurrent decay, open margin. Replace if generalized defective margins or poor contours, poor esthetics or open proximal contact.

- **OKLA**: In general the decision to repair or replace will be based on:
 - Size of the defect
 - In many cases repairing the defect will be as traumatic to the tooth as replacing the restoration.
 - Access to the defect
 - If the defect is a small marginal defect or fracture and can be accessed adequately, then it can be repaired.
 - Location of the defect

If the repair will be in an area of high occlusal stress, the restoration may be replaced rather than repaired.

TENN: In most cases, direct and indirect restorations that are "defective" are replaced rather than repaired.

Guidelines:

- Pros:
 - The longevity of the definitive restoration is not compromised by the repair.
 - Repair newly placed restorations, where the condition of the restoration and underlying tooth structure is known.
 - The repair of a large restoration, where the remaining restoration is adequate and the repair/replacement of the problem would be simpler and more conservative.
 - Location of defect is accessible.
- Cons:
 - Old restorations
 - Doing a repair is more difficult than replacement.
- **UTSA**: There is no written policy describing when a repair vs. a replacement is indicated for either direct or indirect restorations. It is left up to the judgment of the attending faculty to decide the appropriateness of the treatment.
- **UTH**: In general, this philosophy is based upon how treatment options (repair versus replacement) will impact the dental health of the tooth, teeth, and/or peridontium in the long-term; choosing the procedure that will provide the greatest benefit(s) to the patient with (hopefully) the least risk of further complications.

How does your school handle remakes of clinically unacceptable Board restorations that your graduates or other candidates do on school patients of record?

- **BAY**: Clinically unacceptable Board restorations that our graduates place on school patients of record are retreated and restored to proper form and function at the school at no additional charge to the patient. Other candidates who are not Baylor graduates are responsible for referring the patient to a licensed dentist in private practice or back to the school for treatment to rectify the faulty restoration. It is up to the candidate and/or the patient in question to provide payment when treatment is rendered in this case.
- **LSU**: The school is not responsible for any board placed restorations and charges the patient or state board for the replacement. The state board arranges for any retreatment.
- **MISS**: For patients of record, unsatisfactory restorations will be replaced by the next student provider assigned to that patient. If they choose to seek care elsewhere, it is documented in the record retreatment was recommended.

- **OKLA**: The Board requires that the exam candidates have a signed document that assures that a licensed dentist has agreed to take responsibility for caring for any postoperative care required resulting from procedures performed by the Board Exam candidate.
- **TENN**: School patients used by our graduates and graduates of other schools that have unacceptable Board restorations are replaced at no charge. Theoretically at UT, candidates are responsible for the fee for the replacement, but the policy is not enforced.
- **UTSA**: The school agrees to retreat, at no charge, any patient of record who was a board patient who received a clinically unacceptable restoration regardless of whether the board candidate was one of our graduates or someone from outside of the school.
- **UTH**: Candidates must complete a WREB follow-up form to provide the patient any necessary follow-up treatment. Follow-up care for school patients of record is provided by the school (in the school clinics).

III Some faculty of dental schools would like to see the use of some form of electronic patient record with the patient's photo as well as pre-treatment intra-oral photographs included in the record. Does your school use an electronic patient record , and if so, are these items included?

- **BAY**: We are using an electronic patient record at this time. The patient photograph and pre-treatment intra-oral photographs are not part of the record at this time, but will be added in the not so distant future.
- **MISS**: Not at the present, however, plans are to implement the electronic record sometime next year.
- **OKLA**: No we do not use electronic patient records.
- **LSU**: Our school is using old world software known as QSI and we don't handle photos in our database. We do make photos of selected student cases and post on a dedicated computer using digital photography. All competencies have digital images made of each graded step preoperative, preparation, restoration.
- **TENN**: No, we are evaluating systems at this time. The cost of equipment for the intraoral photographs may be prohibitive for UT.
- **UTSA**: The electronic record appears to be 2-5 years out for UTSA
- UTH: No

What type of radiographic record does your school use - conventional radiograph or digital? Both?

- **BAY**: We are using conventional radiographs in all undergraduate clinics and some digital radiography in specialty clinics. Digital panographs are used in the oral surgery clinic. The problem for us using digital radiography in the undergraduate clinics is that each treatment operatory would need to be equipped with a computer and that is not possible at this time. Provisions for operatory computers will be made at some point in the future and at that point digital radiography will be used throughout the school.
- **LSU**: Both. The oral surgery and endodontic programs use digital images. The school's undergraduate program use conventional radiographs
- **MISS**: At the present time, we use conventional radiographs, however, we are about to introduce Shick sensors with Mediadent software in the Radiology Clinic.
- **OKLA**: Conventional in most clinics. Digital in our endodontic clinic.
- **TENN**: Both. The Ortho and Endo departments are using digital radiographs, oral diagnosis and the clinic floor have conventional radiographs.
- **UTSA:** Digital panographs. Endo has intraoral digital.
- **UTH**: Both. Some graduate programs (orthodontics, endodontics) use mostly digital radiographs, while undergraduate clinics utilize conventional radiographs.

If digital x-rays are used, what are the legalities involved and how do you deal with them?

- **BAY**: Digital radiographs are saved as jpg files which when electronically mailed may lose some of the information. The problem is protecting the original image. Another problem is that the digital image may be tampered with; for example, it may be lightened, darkened, or even transposed.
- LSU: N/A
- **MISS**: Just getting into digital x-rays so do not know at this time.
- **OKLA**: Our clinic does not use digital radiographs.

- **TENN**: The legalities are: to make sure digital images are not tampered with, to have the ability to backup images, images taken have the name of the operator who took the radiographs, the date, and name of the patient (the same information required of any legal document). Digital radiographs are treated as any other legal document.
- **UTSA**: Intraoral photos and a electronic panograph are the new standard for patient screening. Staff take the photos. Faculty do a cursory cancer screening. It will be next year before we have an idea if this improves the choice of patients. Done as planned it should allow us to screen about 50% more patients a month. The legal issues have not been an issue to my knowledge. Hard copies of both are printed to be placed in the records.
- **UTH**: Legalities involve security of patient information (including secure access procedures) and patient confidentiality. Security is addressed by computer services within the university. Overall legalities are addressed by university attorneys in accordance with State and Federal laws that regulate such activity.

IV. With the use of higher speed x-ray film, dental decay is becoming more difficult to see on radiographs. Discuss your school's use of film and the rationale for doing so.

- **BAY**: At the present time, our school is continuing to use D speed film for the most part. There have been problems in the past with students using E or F speed film for state board examinations and having the patient rejected because the decay was more difficult to see. We will be changing to the higher speed film, but exactly when this will occur is still unknown.
- **LSU**: LSU is using D-speed film. The head of dental radiology anticipates we will switch to F-speed film in the near future for accreditation
- **MISS**: We use F speed film to make radiographs in the Oral Radiology Clinic. This is the fastest speed x-ray film available now. With proper exposure (we use long cylinders and precision instruments to collimate the beam), processing (in processors that are well maintained) and viewing conditions (using variable control viewing lights with screens), "caries can easily be detected" according to radiology faculty. However, most operative faculty feel that the ultra high speed film does not have as much contrast as the slower film and thus does not show the incipient board type lesions as well. Also the F speed appears grainy at times. We would prefer to use D speed film if we had the choice even though radiology thinks it's archaic.
- **OKLA**: We use Kodak F speed film for our film surveys. The rationale for the high-speed film is decreased exposure to radiation for our patients. Our radiology department assures us that research has supported the theory that these films are equal in diagnostic quality for caries detection when compared to earlier slow speed films.

- **TENN:** UT is currently using F speed film, however, there is a difference of opinion here at UT as to reducing patient exposure to x-rays by using fast speed film vs. the need to take radiographs that are diagnostic.
- **UTSA**: We use high speed film that is of lesser diagnostic quality because it is so sensitive to variations in processing chemistry. It seems to be impossible to change this.
- **UTH**: The standard x-ray film used is the "F" speed film due to expose concerns. If image definition is confusing or unclear, to the detriment of proper patient treatment, "D" speed film may be used with faculty approval. Also, when screening Board patients, "D" speed film may be used to increase image definition, again with faculty approval.

V. Is your school using electric handpieces?

- **BAY**: No, not for intraoral treatment, however we are using an electric lab-engine for lab work.
- **LSU**: In the research clinic
- **MISS**: Yes, we are just getting them set up.
- **OKLA**: Not for clinical use. We have purchased a few to demonstrate, but they are not used generally in our clinics. Our students are purchasing electric handpieces for lab work.
- TENN: Yes
- UTSA: No
- **UTH**: No; however, we have some electric handpieces for evaluation.

What make?

- BAY: Brassler®
- LSU: NSK, KAVO, BIEN-AIR
- MISS: KAVO
- **OKLA**: NSK purchased through Brasseler.
- **TENN**: ADEC, NSK (Brasseler) we are waiting to have this unit installed.

UTSA: No response

UTH: Kavo, NSK, and A-dec.

Where are they being used?

- **BAY**: Pre-clinical labs and for lab work during the third and fourth years
- LSU: Research Clinic
- **MISS**: In the central clinical lab, students check these out as needed and are held responsible.
- **OKLA**: Lab work.
- **TENN**: In the Esthetics Section of the clinic
- UTSA: No response
- **UTH**: The handpieces are used outside of clinic (testing pre-clinic laboratory).

Describe/discuss the pros and cons of the handpieces.

- **BAY**: The advantages of the electric systems when compared to traditional air turbine high-speed and air motor low-speed handpieces include high power, constant torque, concentric bur movement, low vibration level and low noise level. Some of the disadvantages include higher cost, heavier handpiece, a bit of a learning curve and infection control concerns.
- LSU: <u>Pros</u>: High torque, speed control and smooth operation
 - <u>Cons</u>: Weight of handpiece. Must set up each operatory to use the handpieces (cost). We have no plans to convert from high speed air turbines to electric handpieces. We have evaluated electric handpieces in the clinical research area and the response to them has been generally negative. Electric handpieces cut significantly slower than air rotor, still require air lines, are heavy and require holding the handpieces differently. Lastly these handpieces are 3 to 4 times more expensive than conventional air turbines handpieces.....Check out costs currently on each one!!!!!
- MISS: <u>Pros</u>: electric- develop more torque thus cut more efficiently, less distortion or eccentric revolutions than the standard air driven. Cons: electric- initial cost to set up system.

- OKLA: <u>Pros</u>: Lots of torque Cons: Somewhat heavier feel
- TENN: <u>Pros:</u> High torque Lower noise Less vibration No oil contamination from air line
 - <u>Cons</u>: Cost of motor Cost of retrofitting from air turbines Weight of handpiece
- UTSA: No response
- **UTH**: <u>Pros</u>: quiet performance (less noise), less to go wrong mechanically (no turbine), high torque, handpiece speed (high and low) can be dialed in, several handpiece speeds can be preset with some models (touch pad presets).
 - <u>Cons</u>: longevity is an unknown, weight (heavier than traditional handpieces), high torque.

VI. Do you use the "Smart-Prep System" (SS White) of rotary instruments for selective dentin removal in student clinics?

- BAY: No
- LSU: No
- MISS: No
- **OKLA**: No (seems relatively expensive for their benefit)
- TENN: Yes
- UTSA: No
- UTH: No

Describe how often it is used, what your indications are and give technique details if different from the manufacturer's instructions.

(Responses only from schools currently using or planning on using "Smart-Prep System")

TENN: Smart-Prep burs has been used approximately 35 times. The thought was to have dental students use the Smart-Prep burs in the beginning of their clinic experience and hopefully avoid iatrogenic pulp exposures.

What is your opinion of these instruments?

- BAY: N/A
- LSU: N/A
- **MISS**: No opinion at this time
- **TENN**: The problem is the learning curve involved with the burs. For the length of time a student is in the Esthetic Clinic, the student does not have sufficient exposure to learn. For the more experienced clinician, the question arises is does one need to use this \$3.00 bur for the removal of decay, in most cases not.
- OKLA: N/A
- **UTSA**: Not practical; the burs disintegrate when they touch enamel or even sound dentin.
- UTH: N/A
- VII. Often it is difficult to obtain suitable patients for student needs. They seem to be either too easy or too difficult. The teeth either have incipient dental caries or are grossly decayed.

Does your school have difficulties in acquiring suitable patients/conditions for students?

- **BAY:** Baylor (generally) has a sufficient patient pool for the students to meet the 'essential experience' expectations. Finding patients with 'ideal' lesions for progress exams and/or licensing exams is often difficult.
- **LSU**: LSU is very fortunate to have a large patient base and generally does not have a shortage of suitable patients with suitable operative dentistry needs. Certain specific needs in other areas such as single root endodontics are a challenge.
- **MISS**: At times we have problems finding ideal competency type class II and class III lesions. Also difficulty in finding enough class II restorations in general.

- **OKLA**: We have some difficulty in acquiring a sufficient number of "ideal lesions" for competency exams. (Especially Class II lesions)
- TENN: Yes
- **UTSA**: See response to next question
- **UTH**: At times it is difficult to acquire proper patients for specific needs (procedures). Also, case complexity seems to be increasing.

If so, how do you deal with this problem?

- **BAY**: There is generally a school-wide search of the general patient pool prior to clinical examination periods. Students are allowed to share patients if the patient is comfortable with that arrangement, and services are offered to patients at a reduced fee.
- LSU: LSU has increased the number of screening appointments to identify patients with desired treatment needs. Caries cases are unique and if the student is exposed to a wide variety of clinical cases they will be more competent. Enough lesions are available to give students a wide variety of clinical experiences. Patient care coordinators are assigned for each clinic and review student needs during meetings with the students. Our department sends a spreadsheet giving what each student has started and completed and what needs to be completed. The patient care coordinators send requests to screening to obtain more patients.
- **MISS**: We have a TEAM concept with a first, second, third and fourth year students assigned to each team along with a faculty advisor who monitors and advises each team member. All students are provided with the previous patients from their succeeded team members. Students evaluate the patients and the remainder of their treatment plans to decide if they have what they need to fulfill their guidelines. They can discuss with the Patient Care Coordinator who can adjust their patient load by either assigning new patients, or assigning secondary providers to certain procedures for patients with long treatment plans. Students are not encouraged to swap among themselves without going through the patient care coordinator. Also at various times nursing students are screened for board lesions as well as the students' friends and family.
- **OKLA**: We often allow them to take exams on less than ideal lesions.

- **TENN**: Currently, many of the patients seen are not ideal patients for the undergraduate level student, unfortunately, they are the only patients we have available and they have enormous treatment needs as well as financial difficulties. When possible, beginning third year dental students are assigned patients with less difficult treatment plans and fourth year students handle the more complex cases, however, this is not always possible.
- **UTSA**: Indeed there are significant problems finding the correct patients for the students. Because of the student time required to bring a patient into the system, the more difficult patient, than preferred, is the common choice. This year we have given a rapid rejection to patients with VDO problems on our group.
- **UTH**: Basically, by increasing the volume of patients screened.
- VII. Board examinations tend to require traditional tooth preparations and restorations. There is a decrease in the number of teeth requiring these types of preparations and an increase in smaller lesions requiring more conservative treatment. Is this a problem at your school or for your students doing Board Examinations?
 - **BAY:** Obviously there is an ongoing multifaceted debate regarding the medico-legal and ethical ramifications of such examinations. Baylor is not uniquely spared from such controversy.
 - **LSU:** We tend to save ideal lesions for state board examinations. These restorations are identified and assigned to seniors taking state boards. Yes, it requires searching to find these ideal lesions, but they are available.
 - **MISS**: Yes, we have a problem at times with patients not accepting a Class II amalgam and preferring a conservative composite restoration thus negating them as a patient for that exercise. In general, Class III composite lesions are not as difficult to find.
 - **OKLA**: Generally our students are able to come up with lesions conforming to the Boards requirements. We try to train our students in both the traditional tooth preparations and non-traditional preparations so they should not have a problem performing whichever type of preparation is indicated. We still require our students to be able to prepare smooth walls and cavosurface margins, sharp line angles, and conventional retentive features. We don't think our restorative materials of today have surpassed the need for good cavity preparation technique. It is pretty easy from a technical aspect to allow them to convert to more conservative preparations from the more technically demanding traditional preparations. The key is trying to teach them the indications for each type of preparation.

- **UTSA**: Yes. It's better than it was. Although the WREB allows conservative Class 2 (slot) restorations, many examiners seem not to recognized that, so students/graduates are afraid to do the conservative restorations in the exam, even for resin composite restorations.
- **UTH**: In general, ideal lesions for the Board examination are tough to find. Often students are required to use less than ideal situations for one or more aspects of the Board.

Has there been any attempt to discuss the problem with the Licensure Board?

- **BAY**: The director of the fourth year program is and has been in contact with the WREB over the years and minimal tooth preparation philosophies have been discussed at length.
- **LSU**: Yes, the head of operative has discussed this problem with the state board. Modern cavity design preparations have been shown to the state board. They have been receptive, but this needs to be repeated since many of the state board have been replaced recently.
- MISS: YES
- **OKLA**: We have not approached the board about this issue.
- **TENN**: Yes, representatives from UT have attended meetings with SRTA to discuss our problems and concerns. SRTA has been open to allowing school representatives observe the testing process on site.
- **UTSA**: There has been much discussion and much change. There have been two individuals from UTSA that have been on the Operative Dentistry Committee of WREB.
- UTH: YES

What attempt was made and what was the outcome?

- **BAY**: The board has accepted the treatment philosophy that we teach our students. When board applicants present lesions requiring minimal restorations, as long as the tooth to be treated meets the requirements set down for the board, the board of examiners has had no problem as long as the treatment is appropriate and well executed.
- **LSU**: They were receptive and open. Dr. Burgess has gone through their calibration exercise which was excellent.

- **MISS**: At various times we meet with the board to discuss our student's performance, and discuss problems. They understand the difficulty we have finding acceptable lesions, changes were made in how the board was conducted, but not in procedures on the exam.
- OKLA: N/A
- **TENN**: We have met with SRTA and discussed our concerns with them. Starting with this year's graduating class, SRTA has switched the fixed prosthodontic section from patients to typodonts. This was change due to concerns of another dental school. Some of the concerns were: 1) Students failing due to the lab work done by a dental lab or someone else 2) Patients demanding more incentive to return for the seating of the restoration. SRTA is considering changing the criteria for passing the exam to a cumulative score.
- **UTSA**: To allow slot restorations they do; to allow indirect pulp capping procedures they do; to allow Class 2 resin composite restorations they do.
- **UTH**: Traditionally, WREB has been cooperative and willing to help with the problems and concerns regarding the Board examination. They continually attempt to accommodate atypical (conservative) case Board submissions.

What recommendations would you make for improving communication with the Boards?

- **BAY**: The director of the fourth year program and the fourth year faculty have discussed various aspects of the WREB examination with board members over the years and will continue to do so. There appears to be good communication between Baylor and the WREB.
- **LSU**: Continue to meet with them, frequently invite them to attend meeting like CODE, and invite them to attend any calibration exercises that the department conducts.
- **MISS**: We have an executive officer from the Mississippi Dental Association help us grade our clinical mock boards. This person may serve as a bridge to the state board. Also in time we hope more of our graduates become board members. At the present time we have one UMC graduate on the State Board. This can't hurt since they more fully understand the problems. In general, we need to keep improving the communication lines. The new National Dental Board may change things.
- **OKLA**: None, our students seem to perform very well on the board examinations.
- **TENN**: Continue to meet with the Board members and discuss mutual concerns. Continue to take advantage of the opportunity to observe the grading process, and observe specific instances of errors by candidates.

- **UTSA**: To allow academics to be examiners. To have representatives of the Boards continue to attend regional CODE meetings.
- **UTH**: No specific recommendations. School representatives on the Operative Committee of the Board have direct input to the Board. Communication has always been encouraged and welcomed by WREB.

2004 REGIONAL CODE AGENDA

Regional CODE Agenda - summary of discussion:

I. Do all patients receive a caries risk assessment? If not, how do you determine which patients should have a caries risk assessment?

UTSA, BAY and MISS have programs to evaluate all patients. The other schools are developing their system.

II. Do you have a protocol to follow for the high caries risk patient? If so, what is it?

All schools have some protocol for this, involving fluoride, xylitol, antimicrobials and diet and oral hygiene counseling.

III. Do the students see the same caries risk patient long-term (2 years or more)? How do you follow-up on these long-term patients?

Most schools expect the students to follow these patients, however, this is not followed as well as it should.

REGION 3 RESPONSES

(Please cite the evidence were applicable)

Region III School Abbreviations:

BAY	Baylor University	TENN	University of Tennessee
LSU	Louisiana State	UTSA	University of Texas-San Antonio
MISS	University of Mississippi	UTH	University of Texas-Houston

OKLA: University of Oklahoma

I. Do all patients receive a caries risk assessment? If not, how do you determine which patients should have a caries risk assessment?

- **BAY**: All patients receive a caries risk assessment as part of the initial diagnosis and consult procedure. Brown JP. Developing clinical teaching methods for caries risk assessment: introduction to the topic and its history. [Historical Article. Journal Article] Journal of Dental Education. 59(10):928-31, 1995 Oct.
- **LSU**: We are late implementing it, but soon all patients will be screened for caries risk. Currently only screening occurs for 1 or 2 patients during the sophomore year for each student. The caries risk assessment have been modified from San Antonio and are attached. (*Please see Region III Attachments, page 33*)

- **MISS**: YES. (*Please see Region III Attachments, page 37*)
- **OKLA**: No, we still do not have a good formal caries risk assessment in our patient workup sequence. We have submitted a recommended evaluation protocol to our oral diagnosis department, but they have not included it in our routine patient work-up at this time.
- **TENN:** Not formally, a committee has been formed to establish a protocol. This protocol is to be implemented during the next calendar year. (*Please see Region III Attachments, page 38*)
- **UTSA:** All patients receive an assessment of caries risk as a part of the diagnostic process. We expect that students will be able to assess a patient's risk category (high, moderate, low), identify factors specific to each patient, and counsel the patient about their risk for future disease.
- **UTH:** No. Caries risk assessment is suggested for high to moderate caries risk patients. (*Please see Region III Attachments, page 46*)

II. Do you have a protocol to follow for the high caries risk patient? If so, what is it?

BAY: All patients with a caries risk greater than 'low' receive; Diet counseling, OHI and chemotherapeutics when appropriate. Patients are also screened for poly-pharmacy and iatrogenic caries predisposition. *Loesche WJ. Rationale for the use of antimicrobial agents in periodontal disease. [Review]* [71 refs] [Journal Article. Review. Review, *Tutorial] International Journal of Technology Assessment in Health Care.* 6(3):403-17, 1990.).

LSU: Please see Region III Attachments, page 38 (Undergoing revision). Protocol for the high caries risk patient. We are planning a move to more aggressively treat and assess the high caries risk patient by using early diagnosis including risk assessment we hope to categorize and treat these patients early.

- A. Initial treatment will be completion of the caries assessment form to identify caries risk of the patient. Rationale identify the high caries risk patient and assign them to early aggressive preventive treatment.
- B. Providing the patient with Chlorhexidine ½ oz. bid rinse for 30 seconds for 2 weeks. Rationale is to decrease S. mutans colonies.
- C. Assign high caries risk patients to the APC clinic for caries control using fluoride releasing restorative materials. Charged to the patient- rationale-remineralize demineralized tooth structure.

- D. In APC clinic make fluoride carriers/neutral sodium fluoride. Trays are preferred since they cover the teeth with fluoride more effectively, but some people will not wear them, therefore the patients choice. Rationale is to increase remineralization effects by bathing the tooth in fluoride and recharging the fluoride releasing restorations to provide a constant high level of fluoride release from the fluoride releasing restorative materials.
- E. In APC access for xerostomia. If xerostomic then dispense MI (GC America) a calcium phosphate material which provides mineral Ca and Phosphate necessary for remineralization. Rationale: the calcium and phosphate are missing in salivary deficient patients. This application is necessary to stimulate remineralization.
- F. Assign for OHI further decrease plaque retention and diet control.
- G. Recommend Xylitol gum and mints rationale decreased plaque retention and decrease the S. mutans colonies orally.
- H. Plaque assessment and OHI at one month Apply fluoride varnish in hard-to assess areas rationale improve reminerialization efforts.
- I. 6 weeks Reassess patient if complying with OHI and patient wants to continue with restorative treatment then assign to junior student (preferred) or to senior student for treatment plan and definitive care.
- J. Follow-up at three-month intervals to maintain the OHI levels necessary to maintain teeth for a lifetime.

High caries risk profiles include those with frequent carbohydrate intake, reduced saliva flow, increased plaque retention, low fluoride exposure during tooth formation and high bacteria counts. Unstimulated saliva flow is 0.3 ml/minute, while stimulated salivary flow ranges from 1.5-2.5 ml/minute. (*Preservation and Restoration of Tooth structure Mosby London, 1998, pg 20-23. J. McIntyre*) Low salivary flow is often associated with medications such as antihypertensives, antidepressants, anticholinergics or head and neck radiation or Sjogren's syndrome. Low salivary flow reduces the bicarbonate, calcium and phosphate ions removing the buffering ability of the saliva and reducing the ability to reminerialize deminerialized tooth structure by removing the building blocks. High exposure to fluoride during tooth formation reduces the fluorapatite crystals forming tooth structure. Fluorapatite crystals have a critical pH of 4.5, allowing fluorapatite to resist acid demineralization significantly better than hydroxyapatite. Fluoride is most effective on smooth surfaces.

Three prospective in vivo studies describe fluoride-releasing restorative materials used in high caries risk patients. Wood et al⁷³ placed 54 pairs of Class 5 conventional glass ionomer (Ketac-Fil) and amalgam (Sybralloy, Kerr) restorations in xerostomic patients with head-and-neck cancer. When topical fluoride was not used, glass-ionomer restorations had longer survival times than amalgam restorations. When a topical sodium fluoride solution (pH 5.8) was used, amalgam restorations had a longer survival time than the glass-ionomer restorations. This study demonstrated that a fluoride-releasing material, when used without a topical fluoride gel, was effective in inhibiting recurrent caries and that acidic fluoride solutions degrade glass-ionomer restorations. It clearly demonstrates the effectiveness of fluoride-releasing materials in noncompliant patients. Haveman et al³⁵ used a similar population and materials to record the effectiveness of fluoride releasing materials in high caries risk patients. In this study, conventional glass-ionomer (Ketac-Fil), resin-modified glass-ionomer

(Vitremer), and amalgam (Tytin, Kerr) Class 5 restorations were used to treat caries in xerostomic patients. At the 2-year recall, 15% of the Ketac-Fil restorations had recurrent caries; 12% of the Vitremer restorations but 44% of the Tytin restorations had recurrent caries at the margins. Restorations with fluoride-releasing materials had significantly fewer recurrent carious lesions than those with non-fluoride-releasing materials. McComb et al reported that fluoride releasing materials reduced the incidence of recurrent caries in 45 patients who had received head and neck radiation therapy. The investigators restored class 5 carious lesions with Ketac-Fil, Vitremer and a composite resin. At the end of the two year clinical trial, subjects were classified as fluoride users if they used topical fluoride in trays more than 50% of the time. These users had no recurrent caries around the restorations placed. Non users had an 80% reduction in recurrent caries around fluoride releasing restorations compared to non fluoride releasing materials. D McComb, RL Erickson, WG Maxymiw, RE Wood. Operative Dentistry, 2002, 27,430-437 If the patient uses fluoride trays and supplemental fluoride a significant reduction in caries can be expected since the concentration of fluoride in the tray materials is greater than that released from the restorative material. However, if the patient does not use supplemental fluoride then the fluoride release from the restorations provides a level of protection for the high caries risk patient. These three studies suggest that fluoride-releasing materials are effective in reducing recurrent caries. However, recurrent caries were produced around fluoride releasing materials in each study, demonstrating guite clearly that the remineralizing effects of fluoride released from restorations can be overwhelmed if the acid challenge is great enough.

Possibly the greatest proof for the success of fluoride releasing materials comes from a recent meta analysis of clinical studies placing glass ionomer restorative materials in primitive conditions in the permanent dentition. In the ART (atraumatic restorative technique) caries is removed with hand instruments without isolation. The glass ionomer restorative is inserted with finger pressure into the cavity and allowed to cure. Frencken divided the clinical studies into two groups early which used lower strength glass ionomers like Ketac-Fil and Fuji II and late which used higher visocity glass ionomers like Fuji IX and Ketac-Molar. Single surface restorations were used in this analysis which demonstrated that the three year recalls with the high viscosity glass ionomers had equal success retention etc. as the amalgams used in the studies. Low viscosity glass ionomers had significantly poorer results, demonstrating that the finger pressure insertion technique combined with the stronger materials provided excellent results. *Frencken et al JDR 83:120-123, 2004.*

- MISS: Yes. Please see Region III Attachments, page 37
- **OKLA**: See above
- **TENN**: Protocol is based age, twelve and younger, and thirteen and older. Each group has five protocol classifications, ranging from very low caries risk to very high caries risk. (*Please see Region III Attachments, pages 38 44*)

- **UTSA**: We do not have a specific protocol for the high caries risk patient. We do provide the student with prevention options based upon risk status and factors specific for each patient. Depending on the specific options, it may be appropriate to counsel the patient about their diet, increase fluoride exposure, etc. The algorithms are included in the Preventive Plan Guide. Each DSIII student receives a clinic manual that describes most of the preventive protocols and when they should be applied.
- **UTH**: We have developed an "Oral Risk Assessment" form. (*Please see Region III Attachments, page 46*)

III. Do the students see the same caries risk patient long-term (2 years or more)? How do you follow-up on these long-term patients?

- BAY: I. After completion of care, patients are placed on the appropriate recall (3, 4 or 6 month recall). Patients in the recall system will receive both an annual dental exam and annual bitewing radiographs as part of the recall system. Evaluation of the caries risk status is an integral part of the recall examinations.
 - II. Patients with protracted (greater than one year treatment plans) care will receive an 'update oral diagnosis' (update OD) when the student matriculates from the D-3 (junior) year to the D-4 (senior year). During the update OD, the patient will receive both an annual dental exam and annual bitewing radiographs. The treatment plan will be updated in a selective or wholesale manner and the caries-risk status will be reviewed at this time.
- **LSU**: Plan is to allow each student to follow one or two high caries risk patient until they graduate.
- **MISS**: At most the students follow these patients for two years, if the CPS concept "Team program" works as designed then they will be followed by members of the "Team" for more than two years.
- **OKLA**: Generally, our students follow their patients for two years or more. They go through regular periodontal recalls and have bitewings taken more frequently if we feel they are in the high caries risk category.
- **TENN**: Students see their patients for the two years they are on the clinic floor. If a student can not complete a patient's treatment, the patient is assigned to another student. Upon treatment completion, the patient may be placed into the dental hygiene recall program.

- **UTSA**: Usually not. As you are aware, most patients remain with the GPG after the end of the 3rd year and do not proceed with the student to the fourth year. The patients are usually reassigned to another third year student. We teach students the importance of re-evaluation and ask each student to demonstrate progress toward competency by re-evaluating two of their three initial patients. Next year, we anticipate that DSIV students will present a Preventive Portfolio demonstrating competence in assessing risk, applying prevention and re-evaluating patients for change in risk status. This expectation should help to reinforce the importance of longitudinal follow-up of patient's risk status over time.
- **UTH**: Students must recall all of their completed (treatment completed) patients until they graduate (recall schedule is based upon the patient's condition and the type of treatment provided). The patient is then transferred to the Oral Maintenance and Prevention Clinic for one additional recall appointment.

Suggestions for CODE

What can the organization do to improve its effectiveness?

More useful questions with more evidence to support what we are doing. This paper should be reported at the national level in the Journal of Operative Dentistry to really be effective.

What is suggested to improve the Web site?

http://netserv.unmc.edu/code/codeFrame.html

Other suggestions?

Try to schedule the regional meetings toward the end of October or early November.

Suggested topics for next year's National C.O.D.E. agenda:

- Computerization of Operative Dentistry Education
- Laptop computers
- Does your school utilize computer based training (ex. books on CD, laptop computers or PDAs required for all students)? If the answer is yes, what has been your experience with these systems?
- Is there interest in modified 212 and "106" rubber dam clamp prototypes?

REGION III ATTACHMENTS

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CARIES RISK ASSESSMENT FORM

THIS FORM MUST BE COMPLETED, CHECKED AND GRADED BEFORE CONFIRMING THE TREATMENT PLAN FOR OPERATIVE DENTISTRY.

PATIENT: ----

----- CHART #: -----

Start Date: -----Grade------Grade------

Check The Caries Risk Factor (s) Present		Score (Circle)	Start	Recall	Recall	Recall
			enter score	(*)	(**)	(***)
1. Cavitat Include	ed (open) carious lesion/s is/are present in mouth. s leaking defective restorations with open, sticky, margins	3				
2. Cavitat	ted (open) carious teeth = 3 or more	6		a Second		
3. Incipie	nt carious surfaces = 3 or more	2				
4. Numbe	er of filled surfaces = 5 or more	1				<i>.</i>
5. Plaque	present	2				
6. X-ray a	inalyses reveal carles progression over two yrs.	2				
7. Age in caries)	caries active range: 10-18 yrs; over 55yrs (root	2	5			
8. Fluoria water)	le exposure is inadequate (toothpaste daily, gels,	2				
9. Signific	cant change in medical, social, psychological history	1				
10. Medications/medical condition which decrease saliva		2		•		
11. Freque	ncy of dental visits: visits every two or more years	1				
12. Sugary	snacks /diet suggest caries prone	1				
	ENTER TOTAL WEIGHT CHECK AND DATE THE APPROPIATE BOX/ES BELOW					
	LOW RISK MODER.	ATE RISK	HIGH K	USK		
			<i>v</i>			

0-3		4-8	9 OR MORE
(*) Recall Date	Student	Instructo	prGrade
(**) Recall Date	Student	Instructo	rGrade
(***) Recall Date	Student	Instructo	orGrade

	CARIES RISK CLASSIFIC	ATION GUIDELINES				
AGE CATEGORY FOR RECALL PATIENTS*						
RISK	CHILD/	ADULT				
CATEGORY	ADOLESCENT					
LOW	No carlous lesions in last year	No carlous lesions in last three years				
	Coalesced of sealed pits	Adequately restored surfaces				
	and fissures	Good oral hygiene				
	Good oral hygiene	Regular dental visits				
	Appropriate fluoride use					
	Regular dental visits					
MODERATE	One carlous lesion in last year	One carious lesion in last three years				
	Deep pits and fissures	Exposed roots				
	Fair oral hygiene	Fair oral hygiene				
	Inadequate fluoride	White spots and/or interproximal				
	White spots and/or interproximal	radiolucencies				
	radiolucencles	Irregular dental visits				
	Irregular dental visits	Orthodontic treatment				
	Orthodontic treatment					
нісн	\geq 2 carlous lesions in last year	\geq 2 carious lesions in last three years				
	Past smooth surface carles	Past root carles; or				
	Elevated mutans streptococci count	Large number of exposed roots				
	Deep pits and fissures	Deep plts and fissures				
	No/little systemic and topical fluoride	Poor oral hygiene				
	exposure	Frequent sugar Intake				
	Poor oral hyglene	Inadequate use of topical fluoride				
	Frequent sugar intake	Irregular dental visits				
	Irregular dental visits	Inadequate saliva flow				
	Inadequate saliva flow					
	Inappropriate bottle feeding or nursing					
	(Infants)	i				
* At initial vis	sit for new patients, if time of last carles experie	ence cannot be determined, a				
person with no decayed, missing or filled surfaces (DMFS = 0) would be classified as low risk.						
A person with past caries experience, (DMFS>O) and/or one active lesion would be classified						
as moderate r	isk. A person with past carles experience and/	or two active carles or one smooth				
surface lesion would be classified as high risk.						

Factors to which the toothsurface is directly *exposed*, and which contributes to the development of the lesion.

These factors may, depending on the "dose" and "duration", indicate higher or lower risk for caries.

FACTOR	HIGH RISK	LOW RISK	
Amount of plaque	Large amount of plaque on the teeth, meaning many bacteria that can produce acids (low pH, demineralization)	Few bacteria = "good" oral hygiene	
Type of bacteria	Large proportion of "cariogenic" types of bacteria, resulting in lower pH and sticky plaque and also prolonged acid production	Low proportion of "cariogenic" types	
Type of diet	High in carbohydrates, in particular sucrose; "sticky" diet leading to low pH longer time	Low sugar content; non- "sticky" type of diet	
Frequency of carbohydrate s	High sugar frequency resulting in longer time per day with low pH	Low sugar frequency	
Saliva secretion	Reduced saliva flow leading to prolonged sugar clearance time and to a reduced amount of other saliva protective systems	Optimal, helps to wash out sugars and acids	
Saliva buffer capacity	Low buffer capacity resulting in prolonged time with low pH	Optimal, time with low pH shorter	
Fluorides	Absent: reduced remineralization	Available: increased remineralization	

Fluoride Therapies For High Risk Patient

Prescriptions

- 1. Prevident brush on gel (1.1% neutral NaF)
 - Disp: 2 or 8 oz tube

Sig: apply once daily w/ toothbrush or in custom tray for 5 min., swish and spit. Avoid swallowing. Avoid rinsing or eating for 30 min.

- 2. Prevident 5000 plus Toothpaste (1.1% neutral NaF)
 - Disp: 1 tube

Sig: apply once daily on toothbrush. Avoid swallowing. Swish and spit. Avoid rinsing or eating for 30 min.

- 3. Prevident Dental Rinse (.2%neutral NaF)
 - Disp: 1 bottle

Sig: rinse daily w/10ml for 1 min. Swish and spit. Avoid rinsing or eating for 30 min. Avoid swallowing. Alternate with Chlorhexidine mouth regimen every 2 weeks.

Fluoride therapy

Prevident brush on gel. Can use in tray over night.

Prevident 5000 plus toothpaste for non-compliant patient. Easier familiar method, but losses some fluoride in rinsing out toothpaste. *neutral pH is not irritating to the soft tissues and open lesions as acidulated preparations. Acidulated preparations also etch or degrade composite and porcelain. Stannous fluoride preparations stain teeth and composites; can be used to monitor compliance; inexpensive but not popular any more.

Self Applied Fluorides: daily (.05%) or weekly (2%):

Over the counter

1. Fluorigard (.05% neutral NaF)

rinse w/ 10ml for I min and spit (at bedtime) daily

2. Gel-Kam rinse (.63% stannous fluoride) rinse

rinse w/ 10 ml for 1 min and spit (at bedtime) daily

Professionally applied fluorides: usually 2 times a year

1. 2% nuetral sodium fluoride (foam or gel)

- 2. 1.2% acidulated phosphate fluoride (foam or gel)
- 3. 8% stannous fluoride gel (rarely used)

Self applied fluorides: daily or weekly usage

Patient Selection for Office Fluoride

- All patients with active caries
- Children with newly erupted teeth
- All patients from non-fluoridated areas

Chlorhexidine (Antimicrobial rinses)

- Periogard (chlorhexidine gluconate .12%)
- Disp. One bottle

Sig: Rinse 1/2 oz. twice daily for 30 secs.. for 14 days Avoid swallowing. Alternate with Fluoride rinse after two weeks.

CARIES RISK ASSESSMENT

Low risk:

- No presenting caries
- No recent history of caries
- Only simple restorations
- Stable conditions

Actions

- 1. Lengthen recall -6-12 months
- 2. Discontinue systemic fluoride
- 3. Evaluate need for sealants
- 4. Proceed with Phase I and Phase II treatment
- 5. Reevaluate CRA at 12 mos

Radiographic prescription for recall patients

- 1. Primary/transitional dentition: BWx q12-24 mos.
- 2. Adolescent permanent (prior to eruption of 3d molars): BWx q18-36 mos
- 3. Adult dentate patients: BWx q24-36 mos

Medium risk:

- Presents with 1-2 carious lesions
- Several complex restorations (evaluate most recently exposed surfaces)
- Unstable conditions (medical considerations, pending periodontal tx/sx or ortho

Actions

- 1. 6 mo recall and oral hygiene instructions
- 2. Recommend home fluoride
- 3. Sealants
- 4. Assess and address risk factors (diet, tooth morphology, medical considerations, OH habits)
- 5. Proceed with Phase I therapy
- 6. Progress to Phase II therapy once condition is stabilized and a good prognosis is anticipated (at 7-10 day reassessment)
- 7. Reevaluate CRA at 6 mos

High risk:

- Multiple carious lesions
- Many restorations
- Restorations in unusual locations
- Unstable locations

Actions 1. 3-4 mo. recall

Caries Assessment and Management Protocol

Overview

With fluoridation of community water, the assessment of caries has changed. The threshold for active decay is lower than in the past due to the ambient fluoride and the generally improved perception of oral health. As times change so should the assessment of caries activity in patients at the UTHSC College of Dentistry. In 2003, the Dean of the College of Dentistry called for an examination of the didactic and clinical curriculum pertaining to the assessment and management of caries. Finding the didactic sufficient but the past clinical insufficient, a new method was devised in step with current standards. The new protocol for caries assessment and management is presented in brief.

Assessment

The Caries assessment protocol requires initial screening in the Oral Diagnosis Clinic at UTHSC. During the examination, an assessment of the oral health of the patient will be made with special attention to contributing factors to caries. Assessment for adults and children focuses on the primary and secondary risk factors to allow students and faculty to determine the necessary treatment protocol. Both assessment forms, attached in this document, guide the student to evaluate for the following primary and secondary risk factors:

Primary RiskVisible cavitation; white spots; restorations in the last 3 years-recorded;
restorations in the last 3 years-patient reportFactorsDeep fissures; gingivitis; crowding/malocclusion; orthodontic appliances;
history of intermittent or no dental care; frequent snacks; socioeconomic
status; special health care needs; salivary flow deficiency; complicated oral
anatomy

Through a point system, primary and secondary risk factors accumulate to place a patient in very low, low, moderate and high risk factors.

Management

Once the level of disease state is determined, the proper protocol is instituted. The protocol chart, as well as a protocol description in the clinic manual, guides the student in assembling the necessary treatment plan. Patients with higher levels of risk are still an area for development. With the closing of the AEGD clinic, UTHSC has lost its previous treatment option for aggressive treatment of caries. Currently, the College of Dentistry is reviewing the possibility of a caries management team. This team is planned to be composed of junior faculty from the restorative and periodontology departments who would work with students to organize and manage very high caries risk patients.

Maintenance

In conjunction with assessment for current disease, students are made aware of the need for maintaining oral health. With each protocol is a suggested recall interval to ensure continuing support. In this way, the student will view active and supportive treatment with similar value.



Carles Risk Assessment Decision Tree

Current Status

The caries assessment and management protocol has been approved by the UTHSC College of Dentistry curriculum committee with the support of the Dean of the College. It is currently under review by the clinic committee. Following its approval, the protocol will become the active method of assessing and managing dental caries in the dental clinics.

References:

Caries Diagnosis and Risk Assessment: A Review of Preventive Strategies and Management (1995) J Am Dent Assoc 126 (supplement)1-23S.

Fejerskov, O. & Kidd, E. (Eds.) (2003). Dental Caries: The disease and its clinical management. Copenhagen: Blackwell Munksgaard

Newbrun, E. (1989). Cariology. Chicago: Quintessence Publishing Co., Inc.

Caries Risk Assessment Form for Infants and Children Age 0 to 12 years

Age Date of Asse	ssment
1. Primary Risk Factors. Record 1 in each box that applies.	NOTES
Clinical conditions (a) visible cavitation (caries)	
(b) any evidence of enamel demineralization (* white-spot lesions*)	
(c) carious lesions into enamel or dentin by radiograph	
(d) restored caries in past 1 year (from the dental record)	
(e) restored caries in the past 1 year (from patient report, in the absence of dental record)	
(f) deep unsealed pits / fissures	
(g) bleeding gums or visible plaque	
(h) crowding or malocclusion	
(i) wearing dental or orthodontic appliances	
(j) Total primary risk factors	
2. Secondary Risk Factors. Record 1 in each box that applies.	
Environmental characteristics (a) irregular or no dental care	
(b) inadequate fluoride exposure ⁱⁱ	
(c) frequent (> 3 x day) between meal snacks of sugars / cooked starch	
(d) inappropriate nursing behaviors ⁱⁱⁱ	
(e) mother or primary caregiver has active dental caries in the past 1 year	
(f) low socioeconomic status (i.e., eligible for Medicaid or free/reduced lunch	
(g) iow dental "IQ"	
General health / genetic conditions	
(h) children with special health care needs ^{iv}	
(i) salivary flow deficiency ^v	
(j) complicating oral anatomy ^{vi}	
(k) Total secondary risk factors	
3. Use risk factors to select preventive protocol.	
(a) If both box 1(j) and 2(k) are zero then select Protocol A (for very low caries risk)	
(b) If box 1(j) is zero and $2(k)$ is ≥ 1 then select Protocol B (for low caries risk)	
(c) If box 1(j) is 1 and 2(k) is \geq 1 then select Protocol C (for medium caries risk)	
(d) If box 1(j) is $2 - 5$ and 2(k) is ≥ 1 then select Protocol D (for high caries risk)	Protocol Selected
(e) If box 1(j) is ≥ 6 and 2(k) is ≥1 then select Protocol E (for very high caries risk) UT COD FORM XX (INFANT / CHILD)	

UT Infant / Child Preventive Protocols

Protocol A – for very low caries risk

Dental prophylaxis pm

No need for in -office fluoride therapy

Education vii = Behavior reinforcement

Provide positive comments on oral hygiene measures, use of home fluoride supplements like toothpaste, comments about diet ^{viii}, comments about injury prevention

Anticipatory guidance^{vii ix}

Establish recall interval: 1 year

Protocol B – for <u>low caries risk</u>

Special focus on all identified risk factors

Dental prophylaxis (pm) and topical fluoride treatment

Fluoride supplementation (pm)

Education = Behavior reinforcement

Provide positive comments on oral hygiene measures, use of home fluoride supplements like toothpaste, comments about diet, comments about injury prevention

Anticipatory guidance

Restorations as needed

Establish recall interval: 6 months to 1 year prn

Change recall interval to 1 year after 1 year of observation at very low risk.

Protocol C – for medium caries risk

Eliminate/reduce all identified risk factors and promote protective factors Dental prophylaxis and clinical fluoride treatment

Assess total fluoride exposure

Home fluoride therapies, pm

Restorations as needed

Education = Coaching

Reciprocal demonstration of oral hygiene measures

Specific information about diet and dental disease,

Comments about injury prevention

Anticipatory guidance

Other preventive/promotional interventions prn: sealants, zylitol gum, antimicrobial agents Establish recall interval: 6 months

Change recall interval to 1 year after 1 year of observation at very low risk.

Protocol D – for high caries risk

Eliminate/reduce all identified risk factors and promote protective factors Dental prophylaxis with topical fluoride treatment

Assess total fluoride exposure

Home fluoride therapies, pm

Assess Mother/primary caregiver for caries activity. RX treatment to Mother/caregiver prn Restorative Therapy

Education = Coaching

Reciprocal demonstration of oral hygiene measures,

Inquiry into dietary practices and specific dietary information

Comments about injury prevention

Anticipatory guidance

Other preventive/promotional interventions prn: sealants, zylitol gum, antimicrobial agents Establish recall interval: **3 - 6 months prn**

Protocol E - for very high caries risk

Eliminate/reduce all identified risk factors and promote protective factors Dental prophylaxis with clinical fluoride treatment

Assess total fluoride exposure

Assess salivary flow (e.g. medication, disease, subjective report) and prescribe saliva substitute pm

Initiate streptococcus monitoring, Rx: antimicrobial agents prn Home Fluoride Therapies, (**specifically fluoride trays** for home use) prn Restorative Therapy Education = Coaching

> Reciprocal demonstration of oral hygiene measures Dietary counseling ^{viii}, including diet diary and analysis

Comments about injury prevention

Anticipatory guidance

Other preventive/promotional interventions prn: sealants, zylitol gum, antimicrobial agents Establish recall interval: **3 months prn**

Descriptive footnotes:

ⁱ <u>Active</u> enamel white spot caries has a chalky, dull appearance and is porous in texture. It is indicative of active surface caries and does raise the assessment of risk. White spots, with a more shiny look and hard texture are an indication of <u>re-mineralized</u> surface caries or some other form of enamel pigmentation. This inactive white spot should not be used to raise the risk level.

ⁱⁱ This includes such factors as inadequate community water fluoridation, use of fluoridated or nonfluoridated toothpaste, use of bottled water and other possible sources of fluoride exposure.

ⁱⁱⁱ Infants should not be put to bed with a bottle. Ad libitum nocturnal breast-feeding should be avoided after the first primary tooth begins to erupt. Repetitive consumption of any liquid containing fermentable carbohydrates from a bottle or no-spill training cup should be avoided.

^{iv} Children with special health care needs are those at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also health and related services of a type or amount beyond that required by children generally

^v Alteration in salivary flow can be the result of congenital or acquired conditions, surgery, radiation, medication, or age-related changes in salivary function.

^{vi} Tooth anatomy and hypoplastic defects, such as poorly formed enamel, developmental pits, and deep pits may predispose a child to develop dental caries

^{vii} With the child patient all education is directed to both the patient and the adult caregiver. The degree to which the child or the caregiver is the focus of the education is adjusted in each case to the maturity of the child.

^{viii} Diet education. At the "Very Low" and "Low" levels of risk the provider should provide positive comments about how the patient/caregiver must be observing restriction of sweets and clearing the mouth quickly. At "medium" level of risk, the provider should increase the time spent on providing information about bacterial use of carbohydrates to produce acids, naming specific snacks and foods high in refined carbohydrates, and discussing frequency and timing of eating as a factor. At the "high" level of risk, the provider should ask questions about snacking and eating content and habits and base information and prescription of diet practices on this information. At the "very high" level of risk a complete X day diet diary should be prescribed, analyzed and written prescription for diet practices provided.

^{vii ix} Anticipatory guidance is the term used to describe the child's growth and development, and the presentation of a prevention plan that outlines an ongoing comprehensive health care program for the patient.

Caries Risk Assessment Form for Age 13 years and older

Patient	Name:	Age	_ Date of Asse	ssment
1.	Primary Risk Factors. Re	cord 1 in each box that applies) .	NOTES
	Clinical condition (a) visible cavitation (caries)	ons		
	(b) any evidence of enamel de	emineralization (* white-spot lesions*)		
	(c) additional carious lesions i	into enamel or dentin by radiograph		
	(d) additional restored caries i	n past 3 years (from the dental record))	
	(e) <u>additional</u> restored caries the absence of denta	in the past 3 years (from patient report I record)	t, in 1. (f)	
	(f) Total primary risk factor:	S		
2.	Secondary Risk Factors.	Record 1 in each box that app	lies.	
- ((a) deep unsealed pits / fissure	es		
. ((b) bleeding gums or visible pl	aque		
· · (c) crowding or malocclusion			
. (d) wearing dental or orthodor	ntic appliances		
(Environmental c e) irregular or no dental care.	haracteristics		
. (f) inadequate fluoride exposu	ıre ^{II}		· ·
(g) frequent (> 3 x day) betwee sugars / cooked starch	en meal snacks of	· · · · · · · · · · · · · · · · · · ·	
	General health /	genetic conditions		
. (h) special health care needs ii	Î		
. (1	i) salivary flow deficiency ^{iv}			
G	i) complicating oral anatomy	r	<u>2(m)</u>	
(1	k) Total secondary risk fact	ors		
3. Us	e risk factors to select pre	eventive protocol.		
(8	a) If both box 1(f) and 2(m) are	e zero then select Protocol A (for very	low caries risk)	
(1	b) If box 1(f) is zero and 2(m) is	s 1 or 2_then select Protocol B (for low	w caries risk)	
(0) If box 1(f) is 1 and 2(m) is \geq	1 then select Protocol C (for medium of	caries risk)	
. (c	d) If box 1(f) is 2 - 3 and 2(m)	is \geq 1 then select Protocol D (for high	caries risk)	Protocol Selected
(6	e) If box 1(f) is 4 and 2(m) is	≥1 then select Protocol E (for very h	igh caries risk)	
UT COD	FORM XX (13 and older)			

UT Child (13 Years plus) and Adult Preventive Protocols

Protocol A – for very low caries risk

Dental prophylaxis pm

No need for in-office fluoride therapy

Education vii = Behavior reinforcement

Provide positive comments on oral hygiene measures, use of home fluoride supplements like toothpaste, diet viii, comments about injury prevention

Anticipatory guidance (if a child) ix

Establish recall interval: 1 year

Protocol B – for low caries risk

Special focus on all identified risk factors

Dental prophylaxis (prn) and topical fluoride treatment

Fluoride supplementation (prn)

Education = Behavior reinforcement

Provide positive comments on oral hygiene measures, use of home fluoride supplements like toothpaste, diet, comments about injury prevention Anticipatory guidance (if a child)

Restorations as needed

Establish recall interval: 6 months to 1 year prn

Change recall interval to 1 year after 1 year of observation at very low risk.

Protocol C – for medium caries risk

Eliminate/reduce all identified risk factors and promote protective factors Dental prophylaxis and clinical fluoride treatment

Assess total fluoride exposure Home fluoride therapies, pm

Restorations as needed

Education = Didactic reinforcement and coaching

pm describe relevant oral anatomy, disease etiology and process, plaque control methods, relation to diet

Reciprocal demonstration of oral hygiene measures

Specific information about diet and dental disease

Comments about injury prevention

Anticipatory guidance (if a child)

Other preventive/promotional interventions pm: sealants, zylitol gum, antimicrobial agents Establish recall interval: 6 months

Change recall interval to 1 year after 1 year of observation at very low risk.

Protocol D – for high caries risk

Eliminate/reduce all identified risk factors and promote protective factors Dental prophylaxis with topical fluoride treatment

Assess total fluoride exposure

Home fluoride therapies, pm

Restorative Therapy

Education = Didactic and Coaching

Describe relevant oral anatomy, disease etiology and process, plaque control methods, relation to diet

Inquiry into dietary practices and dietary information specific to need

Reciprocal demonstration of oral hygiene measures (reinforce at subsequent appointments)

Comments about injury prevention

Anticipatory guidance (if a child)

Other preventive/promotional interventions prn: sealants, zylitol gum, antimicrobial agents Establish recall interval: **3 - 6 months prn**
Protocol E - for very high caries risk

Eliminate/reduce all identified risk factors and promote protective factors Dental prophylaxis with clinical fluoride treatment

Assess total fluoride exposure, RX home fluoride therapies, (specifically fluoride trays for home use) pm

Assess salivary flow (e.g. medication, disease, subjective report) and prescribe saliva substitute pm

Initiate streptococcus monitoring, Rx: antimicrobial agents prn

Restorative Therapy

Education = Coaching

Reciprocal demonstration of oral hygiene measures

Dietary counseling viii, including X day diet diary, analysis and Rx of specific diet and nutritional measures (may require referral to a qualified dietitian or nutritionist)

Comments about injury prevention

Anticipatory guidance (if a child)

Other preventive/promotional interventions prn: sealants, zylitol gum, antimicrobial agents Establish recall interval: **3 months prn**.

Descriptive footnotes:

ⁱ <u>Active</u> enamel white spot caries has a chalky, dull appearance and is porous in texture. It is indicative of active surface caries and does raise the assessment of risk. If any <u>active</u> white spots place a 1 in Box 1(b). White spots, with a more shiny look and hard texture are an indication of <u>re-mineralized</u> surface caries or some other form of enamel pigmentation. This <u>re-mineralized</u>, inactive white spot should not be used to raise the risk level.

ⁱⁱ This includes such factors as inadequate community water fluoridation, use of fluoridated or nonfluoridated toothpaste, use of bottled water and other possible sources of fluoride exposure.

ⁱⁱⁱ Persons with special health care needs are those at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also health and related services of a type or amount beyond that required by patients generally

^{iv} Alteration in salivary flow can be the result of congenital or acquired conditions, surgery, radiation, medication, or age-related changes in salivary function.

^v Tooth anatomy and hypoplastic defects, such as poorly formed enamel, developmental pits, and deep pits may predispose a child to develop dental caries

^{vii} With the child patient all education is directed to both the patient and the adult caregiver. The degree to which the child or the caregiver is the focus of the education is adjusted in each case to the maturity of the child.

^{viii} Diet education. At the "Very Low" and "Low" levels of risk the provider should provide positive comments about how the patient/caregiver must be observing restriction of sweets and clearing the mouth quickly. At "medium" level of risk, the provider should increase the time spent on providing information about bacterial use of carbohydrates to produce acids, naming specific snacks and foods high in refined carbohydrates, and discussing frequency and timing of eating as a factor. At the "high" level of risk, the provider should ask questions about snacking and eating content and habits and base information and prescription of diet practices on this information. At the "very high" level of risk a complete X day diet diary should be prescribed, analyzed and written prescription for diet practices provided.

Clinic (circle one): DH PED TP

Oral Risk Assessment

	CHART NO DATE
Disease Risk: (select all that apply)	Therapies: (select all that apply)
Dental Caries:	
Cariogenic diet Carious lesions Exposed root surfaces Inadequate fluoride exposure Low salivary flow Malocclusion Multiple restorations Orthodontic or RPD appliance Poor oral hygiene "White spot" lesions Other: At risk for Dental Ca	Antimicrobial mouth rinse Diet counseling Fluoride, Rx: rinse / paste / gel (circle one) Fluoride, OTC: rinse gel (circle one) Fluoride, Topical (type:) Fluoride, Varnish Increase frequency of preventive recall visits Powered appliance Sealants Other: Other: Other:
Deris der tel Disesson	
Attachment loss Bleeding upon probing Diabetes Family/self history Female (pregnant, osteoporosis, BCP, hormone supplements) Inflammation Non-servicable restorations Poor oral hygiene Pockets Tobacco use (types:) Other:	Antimicrobial dentifrice Antimicrobial mouth rinse (OTC or Rx) Antimicrobial therapy (professional) Consultation and/or referral Hygiene aids (types:) Increase frequency of preventive recall visits Restorative dentistry Other: Other:
Oral Cancer: Alcohol use Betel nut use Medical history Sun exposure	Consultation and/or referral Smoking cessation Sun screen Other
Tobacco use (types:) Other:) At risk for Oral Canc	Other: other: er?YesNo
Additional Comments:	
Lindated (every 6 months): Date: /	
STUDENT SIGNATURE / #	DATE
FACULTY SIGNATURE / #	DATE
THE UNIVERSITY OF TEXAS HEAL	TH SCIENCE CENTER & HOUSTON - DENTAL BRANCH 05/24/04

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CODE REGIONAL MEETING REPORT FORM

REGION: IV (Great Lakes)

LOCATION AND DATE OF MEETING:

University of Michigan School of Dentistry

Ann Arbor, Michigan

(734) 936-1597

memclean@umich.edu

Phone #: (734) 615-8353

Fax #:

E-mail:

October 14 - 15, 2004

CHAIRPERSON:

Name: Dr. Mary Ellen McLean

Address: University of Michigan

1011 N University Avenue

Ann Arbor, MI 48109

List of Attendees: enclosed at end of Region IV Meeting Report information

Suggested Agenda Items for Next Year:

- 1. Repeated sterilization dulls burs and some methods create unacceptable corrosion on burs/diamond points. Does your school have this problem? What is your method of sterilizing burs/diamonds?
- 2. Have schools seen a problem with bonded composite cores associated with anterior teeth? A number of failures have been noted during temporization, but after the final impression had been taken.

LOCATION & DATE OF NEXT REGIONAL MEETING:

Name: Dr. Gary Wieczkowski	Phone #: (716) 829-2862
Address: SUNY-Buffalo	Fax #: (716) 829-2440
215 Squire Hall, 3435 Main Street	E-mail : gwhiz@buffalo.edu
Buffalo, NY 14214-3008	Date: October 13 -14, 2005

Please return all completed enclosures to Dr. Larry D. Haisch, National Director, UNMC College of Dentistry; 40th and Holdrege Streets; Lincoln, NE 68583-0750. Deadline for return: <u>30 Days post-meeting</u> Office: 402 472-1290 Fax: 402 472-5290 E-mail: lhaisch@unmc.edu Also send the information on a disk and via e-mail with all attachments.

Please indicate the software program and version utilized for your reports.

2004 NATIONAL CODE AGENDA REGION IV SUMMARY RESPONSES TO NATIONAL AGENDA

I. If bases are used under composites, what materials are being used? (Examples: glass-ionomer, flowables).

Wide range of responses. All school's use calcium hydroxide next to pulp if preparation is within 0.5 mm of pulp. Most schools use a glass-ionomer liner (RMGI) in deeper preparations. Several use no liner at all. None appear to use flowable resin as a liner. Rational for use was stimulation of secondary dentin formation (calcium hydroxide), antibacterial effect (calcium hydroxide), and fluoride release (GI/RMGI). No one used self-etching bonding systems.

II. Describe your school's warranty policy for direct and indirect restorations done in the student clinics.

No school has a written policy on this. Most schools seem to have an unwritten policy where the work will be re-done up to 1-1.5 years of initial placement. The decision as to a re-do seems to be up to individual clinic instructors at many schools. As far as replacement vs. repair of a restoration, the trend is to repair when a repair will give a good clinical result, otherwise the whole restoration is replaced. Replacements done for Board exam cases are done free of charge at most schools.

III. Some faculty of dental schools would like to see the use of some form of electronic patient record with the patient's photo as well as pre-treatment intra-oral photographs included in the record. Does your school use an electronic patient record , and if so, are these items included?

No school has a true electronic patient record system in place. Several have components in use and one is planning to incorporate an electronic system in the near future. All schools seem to use conventional radiographs vs. digital, although, several schools use digital to a limited degree (grad clinics, endo clinics)

IV. With the use of higher speed x-ray film, dental decay is becoming more difficult to see on radiographs. Discuss your school's use of film and the rationale for doing so.

Most schools have gone to F-speed film to reduce patient exposure. Most restorative departments feel the diagnostic quality of F-speed film is poor (contrary to some radiology departments) and would prefer to use D-speed. Some do use D-speed in selected areas (endo).

V. Is your school using electric handpieces?

Only at one school did the students use electric handpieces and that was only for endo. One school had electric handpieces available in the faculty practice facility.

VI. Do you use the "Smart-Prep System" (SS White) of rotary instruments for selective dentin removal in student clinics?

No one is using this system. Several have samples to try. Only one school has tried them and reported they had serious shortcomings and did not perform as advertised.

VII. Often it is difficult to obtain suitable patients for student needs. They seem to be either too easy or too difficult. The teeth either have incipient dental caries or are grossly decayed.

All schools, but one, had difficulty finding enough suitable patients. Generally there was a shortage and many available patients were either too limited in treatment requirements or too difficult for junior students to treat. At least one school has used student pairing to help with this problem in removable prosthodontics.

VII. Board examinations tend to require traditional tooth preparations and restorations. There is a decrease in the number of teeth requiring these types of preparations and an increase in smaller lesions requiring more conservative treatment.

There is a very diverse mix of responses to this agenda item. About half had problems getting suitable Board cases and the same split occurred when it came to speaking with members of the Boards. Some schools did this, others were told not to speak with Board members. Some schools had faculty as Board members and found it easier to communicate due to this fact.

2004 NATIONAL CODE AGENDA REGION IV RESPONSES

(Please cite the evidence were applicable)

Region IV School Abbreviations

CWRU	Case Western Reserve	OSU	Ohio State University
UDM	University of Detroit Mercy	PITT	University of Pittsburgh
ILL	University of Illinois-Chicago	SUNY	State University of NY-Buffalo
IND	Indiana University	WVU	West Virginia University
MICH	University of Michigan	UWO	University of Western Ontario

I. If bases are used under composites, what materials are being used? (Examples: glass-ionomer, flowables).

- **CRWU**: The use of bases for composite restorations is discouraged not taught, although, some faculty are reluctant to eliminate the use of liners (calcium hydroxide) in preparations that are deeper than ideal. The members of the restorative department convened and put together a CWRU policy regarding placement of liners and bases. In certain circumstances students also have the option of using a glass ionomer, especially for carious prone individuals. At the discretion of the clinical preceptor.
 - 1. LC Calcium hydroxide place if 0.5 mm from the pulp. Students are taught that if in doubt a request to place a small amount of "Dycal" if not needed is graded less severely than failure to indicate the need for a liner.
 - 2. GC Fuji II LC Radiopaque Light Cured Reinforced Glass Ionomer Restorative available in clinic not generally used.

Applications: Class III & V restoration (especially near cervix), Primary teeth restorations, Core build-up, Base, <u>liner</u>.

Contraindications: Pulp capping, sensitivity to material

- **UDM**: Bases are not generally used with resin composite restorations. For liner, resin modified glass ionomer (RMGI) is used. Calcium hydroxide is used only in very deep areas of preparations (<0.5mm from the pulp) and is always covered with RMGI (due to CaOH's relatively poor physical properties). Flowables are not used or recommended due to their high degree of polymerization shrinkage and lack of fluoride release (Neme, et.al., 2002 showed less cervical leakage with RMGI liner than with flowable for Class II restorations)
- ILL: No response

IND: Bases (liners), usually not used with composite. If exposure or very close to pulp (micro exposure, Dycal used)

MICH: Bases/liners used:

1) Calcium hydroxide (Life®)

2) Glass ionomer liner (GC Liner®) – chemical cure still used due to shortage of curing lights)

- **OSU:** Clinically, we use Optibond Solo as an adhesive for resin restorations. A glass ionomer base is placed in deep preparations. If the preparation is within 0.5 mm of the pulp, we place Dycal and cover that with a glass ionomer base. Placement of a base in preparations not close to the pulp varies with instructors clinically. Some advocate that the student will need to place the base on the NERB exam (basing the internal form back to ideal) and advocate teaching of this in the clinics.
- PITT: No response
- **SUNY**: No response
- WVU: Fuji II LC and Vitrebond are the two bases used under composites.
- **UWO**: At UWO resin modified glass-ionomer (RMGI) is the material of choice when a liner/base is used under composite.

What are the criteria or conditions used in making the decision to place a base?

AMALGAMS: Traditional and CWRU Options					
Size of lesion -> Size of Preparation	Traditional Restoration	CWRU Alternatives			
Small / "Ideal"	1) Copalite - 2 coats	1) No liner	1) Etch / Rinse		
	2) Amalgam	2) Amalgam	2) Adhesive (ie: Prim 3) Amalgam	e& Bond NT) 2x	
Larger than Ideal	1) Copalite - 2 coats	1) GI Base: (ie Fuji II LC)	1) Etch / Rinse	1) Dycal LC	
within 0.5mm of pulp)	2) Base to "ideal" : Zinc Phosphate	2) Etch / Rinse	2) Adhesive (ie Prime & Bond NT)2x	2) Etch / Rinse	
	3) Amalgam	3) Adhesive: (ie Prime & Bond NT) 2x	3) Amalgam	3) Adhesive (ie Prime & Bond NT) 2x	
		4) Amalgam		4) Amalgam	
Larger than Ideal (mechanical exposure	1) Ca hydroxide LC	1) Ca hydroxide (Dycal LC)	1) Ca hydroxide (Dycal LC)	1) Ca hydroxide (Dycal LC)	
or < 0.5mm of pulp)	2) Copalite - 2 coats	2) GI base75mm	2) Copalite 2x	2) Etch / Rinse	
	3) Base to "ideal": Zinc Phosphate	3) Copalite (optional) - 2x	3) Zinc Ph Base (0.75mm)	3) Adhesive (i.e. Prime&Bond NT) 2x	
	4) Amalgam	4) Amalgam	4) Amalgam	4) Amalgam	

CWRU: See above for composites. Chart below for amalgams.

Generally do not recommend liner - unless pulp exposure - non-carious

- **UDM**: Bases are not used with resin composite restorations. The decision to use a liner is based on clinical judgment and remaining dentin thickness. Generally, liners are used when preparations are "deep", if active caries is removed during preparation, or if patient has a high caries rate. For Class I composites, a liner is recommended any time the preparation extends into dentin, regardless of depth.
- ILL: No response
- **IND**: Proximity/injury to the pulp or need for thermal insulation.

- **MICH**: 1) Direct or indirect pulp caps (CaOH)
 - 2) Anticipation of sensitivity due to depth of preparation, history of sensitivity, or young age (glass ionomer liner)
 - 3) High caries risk (fluoride release from glass ionomer liner)
- **OSU:** Dycal when within 0.5 mm of the pulp. Glass ionomer recommended over the dycal. No definitive rules beyond that. Generally at the discretion of the faculty member.
- PITT: No response
- **SUNY**: Pulpally deep amalgam preparations. Although the literature indicates that liners are not necessary under composite restorations, some faculty still promote their use in pulpally deep preparations
- WVU: Remaining dentin is the determining factor.
- **UWO**: When prep is less than 1.0 mm into dentin, no liner/base is used before etching and bonding. Deep/relatively deep preparations are lined with glass-ionomer.

What is the rational for using the specific material(s)?

- **CWR**: Calcium hydroxide is recommended only if the prep is extremely close/noncarious pulpal exposure – for the initiation of secondary/tertiary dentin
- UDM: RMGI: bonds to dentin, releases fluoride (*though less than traditional GI: Pereira, et.al., 1998*), adapts well to cavity surfaces, relatively easy to handle, light cured (do not have to wait for setting reaction, as with traditional GI), is compatible with resin composite.
 Calcium Hydroxide: There is some evidence that CaOH is beneficial in very deep preparations (*for direct pulp capping: do Nascimento, et.al., 2000*) and is more biocompatible than other materials (*Hebling, 1999, Costa, 2000, Hebling and Costa, 2003*).
- ILL: No response
- **IND**: Thermal protection or stimulation of secondary dentin formation.

- **MICH**: 1) Calcium hydroxide is used over direct or near pulpal exposures to:
 - a) assist reparative dentin formation
 - b) provide antibacterial properties
 - 2) Glass ionomer liner is placed over calcium hydroxide for direct or indirect pulp caps to:
 - a) prevent dislodgement of Ca OH
 - b) provide additional physical barrier against marginal microleakage
 - c) provide antibacterial properties
 - 3) Glass ionomer liner is used alone for
 - a) fluoride release in high caries risk situations
 - b) reduction of post-op sensitivity and provide an additional physical and antibacterial layer in deeper than ideal preparations in young patients where thinner remaining dentin is more permeable
- **OSU:** Compatibility and performance with a wide range of materials; fluoride; biocompatibility; cost; ease of use.
- PITT: No response
- **SUNY**: Used for the anti-bacterial effect in deep lesions.
- WVU: Fluoride release. Very little post operative sensitivity with GIC.
- **UWO**: to protect pulp against effects of acid etching (??)
 - to provide a fluoride rich area in case of marginal micro-leakage
 - to reduce the bulk of composite thereby reducing the effects of uncontrolled shrinkage during the curing of the composite resin

Is your school using self-etching bonding systems?

- CWR: No
- UDM: No
- ILL: No response
- IND: No
- **MICH**: No. Self-etching systems not used yet due to problems reported with enamel bonding. Optibond system currently used has separate etching for more consistent bond to enamel. Adequate bonding to dentin and history of clinical success. Unit dose packaging for infection control purposes in student clinic.
- **OSU**: In the clinics no. In the faculty practice at the discretion of the practitioner.

PITT: No response

- **SUNY**: No. We use the total etch (enamel and dentin for 15 seconds) technique where there is at least one margin in dentin, and we etch only the enamel where all margins are in enamel. We then place 4-5 layers of Prime 'n' Bond, followed with the restorative resin. The decision was made unilaterally by the chair.
- WVU: No
- **UWO**: Not at this time. I would like a little more reassurance this is the way to go.

What system is used and what evidence was used in making this selection?

- CRW: N/A
- UDM: N/A
- ILL: No response
- IND: N/A
- MICH: N/A
- OSU: N/A
- PITT: No response
- SUNY: N/A
- **WVU**: Still using 4th generation Scotchbond MP. This is still a very good material. It is technique sensitive but a material that is fairly easy to explain to students. Does allow one to explain the hybrid layer and its development through etch, prime, and bond steps.
- UWO: N/A

What has been the outcome?

- CRW: N/A
- UDM: N/A
- ILL: No response

IND:	N/A
MICH:	N/A
OSU:	N/A
PITT:	No response
SUNY:	N/A
WVU:	A great deal of clinical evidence that the bonding is satisfactory.

UWO: N/A

II. Describe your school's warranty policy for direct and indirect restorations done in the student clinics.

Is there is a "no-charge for replacement" policy and how long would this usually be?

- **CRW**: There is no written policy at the school. There is an unwritten understanding that, in general, restorations that need to be replaced/fixed within 6 months of initial placement are done at no additional cost to the patient. The decision is usually made by the clinical preceptor, often, after consulting with the Assistant Dean of Clinical Education. Consultation is requested for the more costly procedures.
- **UDM**: There is no formal written warranty policy. Problems with recently placed direct and indirect restorations are evaluated on a case-by-case basis. Direct and direct restorations are usually replaced at no charge for a period of one year. This does not apply if the reason for replacement is new caries.
- ILL: No response
- **IND**: About 1 year for all restorations if not due to secondary decay. Variable/ decisions made on a case by case basis.
- **MICH**: There is no written or set policy. No-charges are approved on an individual caseby-case basis. Comp care clinic directors and specific designated clinical faculty can approve and sign-off on no-charges. Patient care coordinators can approve no-charges up to \$75. No-charges are granted if a restoration or prosthesis fails due to an obvious mistake which should have been prevented or corrected at the time of placement. Generally replacements are done at no-charge if a restoration or prosthesis fails within a year of placement.

- **OSU:** No written policy. The decision, on any restoration, is initiated by the treating student/faculty and brought to the clinic director who has authority to authorize a no-charge fee. Most directors feel that failure of a direct restoration within six months to one year is grounds for replacement at no charge.
- **PITT**: No response
- **SUNY:** We have no written policy, the clinical faculty use their judgment. Generally, restorations that have to be replaced within a year of placement are done free of charge. Restorations that are older than a year require an OK from one of our four Group Directors, or the clinical faculty may consult with our Patient Advocate. Older restorations with long-standing open margins or caries, as evidenced by radiographs, would fall into this latter category. Also, any restorations with a cost of \$50.00 or more must be referred to the Group Director for approval.
- **WVU**: Policy on replacement is on a case-by-case basis. Generally 1-1.5 years if secondary caries is not the cause. Our policy is to replace the core under a casting unless it was placed at the school in a recent time frame.
- **UWO**: Our school has no formal "warranty policy" on any restorative procedures. We do, however, redo/replace restorations within one year of placement if it is felt failure was due to incorrect/poor work. No written policy. If a faculty member feels the restoration was less than satisfactory, within a reasonable time (one year), it will be replaced at no cost to the patient.

Describe your repair vs. replacement philosophy in student clinics for direct and indirect restorations. Provide some guidelines - indications or contraindications for repair vs. replacement. Are there differences between amalgams and composites?

- **CWR**: No written guidelines for repair vs replacement. Generally, the clinical preceptor would decide. If there is a concern decision is made with consultation with Assistant Dean of Clinical Education. There are very few repairs/replacements estimated to be less than 5% of amalgams and/ composite restorations. No difference in policy for amalgams/composites.
- **UDM**: Most faulty amalgam restorations are replaced rather than repaired. Some resin composite restorations are repaired (faculty have been informed that this is possible and sometimes preferred over replacement, but there has been slow adoption of this philosophy). Indirect restorations are repaired if there is good access to the caries/defect and the repair preserves the integrity of the original restoration. "Repairs" are preferred to replacement for high and moderate risk caries patients, until caries risk factors are controlled.
- ILL: No response

- IND: If tooth/restoration is best served by repair, we repair. Case-by-case basis. Extent of repair and access are usually determining factors. Same basis for direct and indirect restorations.
- **MICH**: Repairs are acceptable and encouraged when the lesion/problem can be completely and predictably corrected by repair rather than replacement (i.e. small area of recurrent caries or marginal stain is easily accessible and easily removed). Repairs are not done if one cannot ensure that the problem was corrected (i.e. incomplete caries removal, inadequate access) or if reasonable longevity cannot be predicted. Repair vs. replacement may be left up to the patient's option after informed consent.
- **OSU:** As outlined above, financially. Clinic faculty exert their experience, along with knowledge of student skills in the determination of replace/repair decisions. Size of the restoration, extent of caries if present, caries history of the patient, other dental needs of the patient and patient availability are some of the factors considered.
- PITT: No response
- **SUNY:** <u>Direct Restorations</u>: We do not repair any 'outside' direct restorations. Remembering that one of our objectives is to have the students be able to create acceptable restorations, we will not allow any immediate repair, unless the judgment of the faculty dictates. In making this determination, we also take the patient into consideration. Examples of repair would include a large pin amalgam that is a final restoration that may have a minimal non-critical defect, or an amalgam or resin that will be used as a core for a crown. We will repair amalgam restorations if they were done in our clinics in the recent past, and the repair is necessary, but minimal. Because of the difficulty in handling the material, we are less likely to attempt to repair a composite.

<u>Indirect Restorations</u>: We do not repair any 'outside' indirect restorations. Marginal defects, if likely will become carious, or if definitive caries is present at a margin, a repair will be recommended, if in the judgment of the faculty, the repair will improve the longevity of the restoration. These repairs will generally be minimal. Age of the restoration is also considered

- **WVU**: Amalgam may be repaired if a large core fractures shortly after insertion and before the amalgam is completely set. Composites are occasionally extended to an additional surface.
- UWO: New or very recently placed restorations will be replaced/repaired at no charge to the patient. If a repair will provide a satisfactory result then that is done, if not the restoration is replaced.
 Indirect restorations more than small defects (open margins on restorations will be repaired if they are minor, any fractures, large chips out of porcelain will be

repaired if they are minor, any fractures, large chips out of porcelain will be replaced) where possible direct composites and amalgams are repaired rather than replaced as long as the repair does not negatively affect the prognosis. How does your school handle remakes of clinically unacceptable Board restorations that your graduates or other candidates do on school patients of record?

- CWR: For our graduates, the patient would be assigned to a third or fourth year student to replace the restoration at no cost to the patient. The need for remakes has been rare, generally the failures are not because the final restoration is not clinically acceptable.
 For graduates of other institutions, they generally write down the name of a dentist in private practice, or their institution.
- **UDM**: Clinically unacceptable Board restorations are replaced at no charge to the patient.
- ILL: No response
- **IND**: Replace at a fee or refer if it is patient's request.
- **MICH**: In the past, treatment was redone by either the student to whom the patient is assigned or by a newly assigned student if the assigned student had graduated. Now that the clinical portion of NERB moved from May to March, the student who performed the work fixes their own mistakes. Any necessary treatment is done at no-charge.
- **OSU:** The director of clinics maintains a list of all unacceptable board restorations on patients of record and follows up with all appropriate students until satisfactory completion of the procedure.
- PITT: No response
- **SUNY**: If the patient is a school patient of record, the permanent or temporary restoration will be replaced as soon as possible. In the past, this was accomplished in our summer clinic, because the NERB was given in May. The restorations are done at no cost to the patient.
- **WVU**: Only one patient has returned with a failed restoration from the board examination in the last three years. That was a wife of a student and he did the remake.
- **UWO**: No Boards N/A

- III. Some faculty of dental schools would like to see the use of some form of electronic patient record with the patient's photo as well as pre-treatment intra-oral photographs included in the record. Does your school use an electronic patient record , and if so, are these items included?
 - **CRW**: No electronic records/No intra-oral photos as a routine, although our 4th years students have "Senior Case" that must be documented with before and after photos, casts, etc.
 - **UDM**: UDM does not use an electronic patient record, but does record patient activity and treatment plans electronically. A digital patient record is currently in development with implementation planned for 2007. Inclusion of patient photographs has been discussed.
 - ILL: No response
 - IND: Do not use.
 - **MICH**: Working toward an electronic record someday, but not yet. The primary obstacle is the need for computer equipment in each student cubicle. Axium is used for patient management functions.
 - **OSU:** We are in the process of installing the latest version of Windent software to handle images related to the electronic patient record. Ortho, Endo and Surgery are installing digital radiography units. Additionally, digital cameras have been purchased for each clinic for student documentation of treatment and case presentation. The images captured will also become part of the electronic record.
 - PITT: No response
 - **SUNY**: We have an electronic patient record of sorts, but it is not fully implemented. The students make appointments and enter treatment plans using the clinic floor computers. We have recently added an electronic referral system as well. Neither the patient's photo nor any pre-treatment intra-oral photographs are included in the record. Training is provided to the students to learn to use the software.
 - **WVU**: Electronic charting will be part of our new clinic which is in the planning stage. We are using AXIUM.
 - **UWO**: Western does not presently have electronic records but would like to go this way in the near future cost as usual is a factor!

What type of radiographic record does your school use - conventional radiograph or digital? Both?

- **CWR**: Conventional although digital has been installed, but as our computer system is being changed, only the conventional radiographs are being used. (Type: Kodak: Insight / Clinasept 1P-21C #2 FE Speed)
- **UDM**: Both are used. The Endodontics department (primarily Grad Endo) uses digital radiology. All other clinics use conventional radiographs.
- ILL: No response
- **IND**: Conventional.
- **MICH**: In the student clinics, conventional radiographs are used. Graduate Endodontics uses digital radiography for intratreatment radiographs, but the final fill film is taken with a conventional film to be placed in the patient record.
- **OSU:** Currently, conventional. In the future, the graduate clinics will mostly have digital records.
- **PITT**: No response
- **SUNY**: We use conventional radiographs only, and have no immediate plans to use digital.
- **WVU**: Conventional radiographs.
- **UWO**: Both, in the endo clinic everything is digital, final digital radiographs are being printed off for use in the main clinics. The main clinics now use conventional radiographs. We have been looking at going digital in these clinics as well in a year or so.

If digital x-rays are used, what are the legalities involved and how do you deal with them?

- CWR: N/A
- **UDM**: The software program (Schick) used includes safeguards to prevent tampering with the image, including stamping the image as "imported" or "exported".
- ILL: No response
- IND: N/A

- MICH: Not applicable at this time
- **OSU:** We have assured that the images captured cannot be altered (without creation of a new image, leaving the original untouched). The images are on protected servers with restricted access to only individuals who need the records.
- **PITT**: No response
- SUNY: N/A
- WVU: N/A
- **UWO**: Right now the head of our radiology department says we do not need a "hard copy" of radiographs for legal purposes as, apparently, the original image cannot be altered, only a copy of the original may be altered. Apparently there is a way of detecting which is an original.
- IV. With the use of higher speed x-ray film, dental decay is becoming more difficult to see on radiographs. Discuss your school's use of film and the rationale for doing so.
 - **CRW**: We are also encouraging students to do more transillumination.
 - **UDM**: UDM uses Kodak Insight Speed Group F film. According to radiology faculty, this film provides the same contrast and density as D speed film with less radiation exposure. In addition, it can handle suboptimal processing conditions better than D speed film. Most faculty have not noticed significant differences between F and D speed film, although one faculty member commented that it is more difficult to see buccal or lingual lesions with the film.
 - ILL: No response
 - **IND**: We use high speed film to minimize radiation exposure. Difficult to read.
 - MICH: (Answer provided by Dr. Sharon Brooks, Dept of Radiology): Kodak Insight (F-speed) - primarily because of radiation dose concerns. If the exposure time is correct, it is fine for caries. It is a little bit touchier on exposure time due to patient size and processing issues, so the films are not always perfect or ideal. However, magnification helps a lot.

OSU: We currently use F-speed film (Insight, Kodak) in our pre-doctoral clinic and Dspeed in the Endo clinic. Since Kodak no longer manufactures E-speed film and the National Council on Radiation Protection has recommended the use of Espeed film, we have moved to F-speed for patient radiation protection. The director of radiology has not seen much difference in image quality since the change; other variables also affect the quality of the image (such as processing parameters).

PITT: No response

- **SUNY:** We are currently using F speed film, and have been for about three years. We used E plus film for about five years prior to F (the E film was too grainy), and D speed prior to E plus. Our restorative department feels that the F speed film makes it very difficult at times to properly visualize the caries. Some would like to go back to D speed film, and in fact, D speed is what is used by our 4th year students when taking bite-wing films for the NERBs. It is also widely used by the faculty practice group. The radiology department here does not share our concern about not being able to see the caries well on F speed film. Their rationale is the reduced exposure to the patient, and as mentioned, they feel that the F speed film delivers a diagnostic caries detection x-ray.
- **WVU**: WVU uses Ultraspeed D film. We felt that too many lesions were being overlooked with the higher speed (lower exposure) film. All of our faculty use some type of magnification.
- **UWO**: UWO uses Kodak INSIGHT F E speed. When asked our dental radiologist said we use for two reasons: reduced patient exposure, and no difference in diagnostic accuracy

V. Is your school using electric handpieces?

- CWR: No
- UDM: No
- ILL: No response
- IND: No
- **MICH**: For laboratory work only not intraoral except for Endodontics
- **OSU:** No. Handpieces are leased to students. It would be significant to change to electronic handpieces at this time.
- **PITT**: No response

- SUNY: We are not using electric handpieces.
- WVU: School uses electric handpieces since September 2004.
- UWO: Yes

What make?

(Responses only from schools currently using or planning on using electric handpieces)

- **MICH**: NSK Volvere 10 in the lab. Rotary endo set-up in 8 cubicles uses Dentsply equipment.
- WVU: ADEC
- **UWO**: Dentsply Tulsa Dental, model AEU-25T Electric Endodontic System Endo OTC

Where are they being used?

(Responses only from schools currently using or planning on using electric handpieces)

- MICH: 10 in lab, 8 in clinic
- **WVU**: Only used in private practice area by faculty members.
- **UWO**: In our pre-clinical endo course and the student endo clinic

Describe/discuss the pros and cons of the handpieces.

- CWR: N/A
- **UDM**: We have not seriously considered use of electric handpieces. I believe cost and need for replacement of existing air driven handpieces are the main issues.
- ILL: No response
- **IND**: Don't know. Don't use. I have heard they are bulky and very high torque. Learning curve involved.
- **MICH**: More power/torque.
- OSU: N/A
- PITT: No response

SUNY: N/A

WVU: Have not had enough experience to know the pros and cons.

UWO: 1. torque control (can be pre-set depending on the instrument used)

- 2. constant speed can be set with no variation
- 3. no or very little noise
- 4. very low maintenance
- 5. can be used independent of dental unit if necessary

VI. Do you use the "Smart-Prep System" (SS White) of rotary instruments for selective dentin removal in student clinics?

CWR: No UDM: No ILL: No response IND: No. MICH: No. It is discussed in preclinical lecture but it is not used. OSU: No PITT: No response SUNY: We are not using the 'Smart-Prep System'. We are not familiar with it, and are interested in learning about it. WVU: We do not use the "Smart prep bur"

UWO: No

Describe how often it is used, what your indications are and give technique details if different from the manufacturer's instructions.

Not applicable for all responding schools

What is your opinion of these instruments?

- CWR: N/A
- **UDM**: We have samples of the instruments, but have heard feedback that the system is somewhat difficult to learn and use. Students are taught a simple stepwise method of caries removal that involves use of low speed rotary instrumentation and judicious use of hand instruments that has proven to be effective, so we are not looking to make a change at this time.
- ILL: No response
- IND: Hype.
- **MICH**: We have little experience with these as a group. However, Dr. Tilly Peters is currently doing research using them. Here is her personal opinion:

"We have done lab testing of the instruments and the residual dentin. The hardness values are lower than the claim of the manufacturer. That corroborates with the idea of several colleagues - who used these burs in patients - that these burs don't take out enough of the affected dentin, and still leave 'caries' behind. I have used the burs at 650 rpm (very low speed is important!) in a clinical caries study to obtain a standard affected dentin layer. This worked very well. They were used extensively and in often very deep cavities, one bur per cavity, and resulted in ZERO pulp exposures."

- OSU: N/A
- PITT: No response
- SUNY: N/A
- WVU: No response
- UWO: N/A
- VII. Often it is difficult to obtain suitable patients for student needs. They seem to be either too easy or too difficult. The teeth either have incipient dental caries or are grossly decayed. Does your school have difficulties in acquiring suitable patients/conditions for students? If so, how do you deal with this problem?
 - **CWR**: No. We are very fortunate at Case, the school has a very diverse patient population.

- UDM: This is an ongoing problem. Most of our patients are too difficult for our undergraduate students. At the present time, we are having the most difficulty finding appropriate operative and fixed prosthodontics patients. We deal with this problem is a number of ways. One strategy is to increase the number of screening appointments that are available to potential patients. In the past, we have also advertised in local newspapers for patients with certain treatment needs. Many patients that had previously been turned away as being too difficult can now be treated by our AEGD residents. This program as well as other grad programs supports the treatment of patients with complex needs by both undergraduate and graduate students working in concert. Some patients are accepted for Phase I treatment only, then are referred to private practice for Phase II. Students are encouraged to transfer patients to other students or allow classmates to treat their patient for certain procedures with faculty approval. Finally, Patient Care Coordinators and faculty are continuously working to improve patient assignment systems to provide the best possible mix in students' patient families.
- ILL: No response
- **IND**: No problem finding students, but we have that problem. Try to minimize through Clinic directors assigning patients, but with Comp Care system, mismatches still occur.
- MICH: It is becoming more difficult due to increased productivity in the student clinics, but we are managing. Reviews of student productivity indicate that students who are most productive usually have fewer patients assigned in their patient pool than less productive students. It appears that these students have better communication skills and better patient management skills which allow them to keep the patients assigned to them and get more treatment completed. Emphasis has been placed in the curriculum on improving patient management and communication skills with patients, including the use of a standardized patient instructor program. Outreach clinics provide students additional experience treating high caries patients and Dental Health Day helps recruit new patients into the school.
- **OSU:** We have patients in both extremes of patients. We get good patients at the "small needs" end of the spectrum from the recall/hygiene clinic. We also have a number of specialty faculty in the clinic (especially the D4 clinic) to allow comprehensive treatment of the complex patient. With the increasing external experiences as part of the Robert Woods Johnson grant, we expect that the patient supply will be adequate. We have changed the screening clinic procedures to allow triage of new patients and more appropriate assignment to the D3 and D4 students.
- **PITT**: No response

SUNY: Yes, it is difficult for us to find suitable patients. We now accept undergraduate student insurance. There are 7,000 undergrads on campus insured by Chickering (Aetna) Insurance. We honor the initial fee of \$35.00 (set by Aetna). This includes comp oral exam, prophy, bitewings, and treatment plan. The same is offered for 6 month recall. The rest of the treatment is at normal school fees, which represents a great cost savings for the remainder of their care. Our students have recruited these patients themselves. To date, we have cared for about 85 Chickering patients this past semester. The SDM web page has info to assist patients in finding the Chickering offer.

We have a direct referral system from ortho to the four practice groups for any ortho patient who does not have a family general dentist. This was done by working in conjunction with ortho to set up a dental report for each ortho patient, thereby finding the ones who had no routine dental care. Lastly, we encourage students to recruit family and friends. Our experience has been that these patients tend to pay in a more timely fashion, and they tend to keep their appointments.

- **WVU**: We are presently making an effort in being more discriminate in our selection of patients. It is difficult for this reason to get enough patients through the screening process, but once they are in they should be more reliable and appropriate patients for our students. In the area of removable prosthodontics the students work in pairs (share same patient).
- **UWO**: Yes, younger patients are either caries free or just have incipient lesions. Older patients provide a good supply of Class 5 erosion lesions and large complex amalgam repair/replacement challenges that students are not equipped to handle. Over the last 10 years the class size has gone from 40 to 68, but the patient pool has remained the same, resulting in less clinical experience for each student.

We have tried to tap non-tradition sources – Salvation Army "street kids", seniors groups without dental insurance, and promoting the dental school within the local dental community for patient referrals. At this point nothing seems to work all that well. Control of students patient portfolio's is becoming more important in order to ensure a fair distribution of existing patients/procedures. We are now a competency-based school and only rely on "minimal numbers" of procedures to achieve proficiency levels. Again, control of the number of required procedures assigned to each student is critical

- VIII. Board examinations tend to require traditional tooth preparations and restorations. There is a decrease in the number of teeth requiring these types of preparations and an increase in smaller lesions requiring more conservative treatment. Is this a problem at your school or for your students doing Board Examinations? Has there been any attempt to discuss the problem with the Licensure Board? What attempt was made and what was the outcome?
 - **CWR**: No. We are very fortunate at Case, the school has a very diverse patient population. In addition, the administration and student groups are pro-active in helping the students find patients by hosting one or two "Prophy Days" in which routine dental examinations, including appropriate radiographs, and prophylaxis are free to all Case undergraduate and graduate students. These are performed on a Saturday with faculty supervision. We have a large international student body, many who came from non-fluoridated areas. This helps improve the pool of patients that need the slightly larger restorations. The administration and faculty have very strong feelings about the Licensure Board. Many of the concerns are related more to the philosophical differences of the entire concept, as well, as concerns about the type of lesions accepted. That is the recent modification, allowing lesions to be only into the enamel. We have one faculty member who is a NERB examiner, and four faculty have taken part in the Westerns as faculty observers. We host both NERB and WREB exams. Many students take WREB's as opposed to NERB's.
 - **UDM**: Finding adequate board lesions is always a challenge. There are many teeth requiring restoration in our clinic patient population, however, lesions that fit the board's narrow parameters are more difficult to find. Add to that the fact that we administer two mock board examinations in the fourth year, and there is a shortage of "lesions". Lesion requirements for the mock boards are much more relaxed than those of the NERB and many students restore teeth with larger lesions than would be desirable for the board. Many of us at UDM are concerned that the NERB guidelines for lesion selection promote restoration of teeth that would be better treated non-surgically. We are concerned that the board is not following current, evidence-based clinical practice guidelines and attempt to make this point with students, even as we advise them that, yes, the lesion meets the NERB criteria. There has been no attempt to discuss this with the Board. However, we are supportive of initiatives aimed at eliminating the use of live patients for licensure testing.
 - ILL: No response
 - **IND**: We seem to be dealing with it. I am not "allowed" to talk to the Board Members, only talk to Clinic Director and Dean of Clinics. Not a good situation, but that is the politics of this place.
 - **MICH**: It is becoming more difficult, but we are managing. There have attempts to discuss the problem with the Licensure Board. Moving the clinical portion of the NERB exam to March instead of May has relieved some of the pressure on students.

OSU: Difficulties are chronic and may not have changed over the years. Despite the change of acceptable lesions to lesions that would normally be treated with non-surgical approaches, our students have difficulty finding patients. This year, my impression was that there was more need for perio. patients. We maintain lists of students needing the different patient type for the board. There has been no attempt to discuss the problem with the Board. Currently working to identify how and where to contact.

PITT: No response

SUNY: Somehow the good students find their lesions well in advance of the exam, and the poorer students are scrambling up until the last minute, but, all students find acceptable lesions.

The NERB does have a yearly meeting with representatives of the schools. There were two distinct outcomes. One outcome has been the acceptance of posterior teeth for the amalgam portion which have a lesion which extends only one-half the thickness of the interproximal enamel. We believe that allowing these lesions to be restored is unethical. Another outcome has been to move the NERB clinical exam from May back to February. This was hoped to have the effect that students could treat lesions that could not normally wait for May treatment, for fear the lesions would become worse.

Also, in New York State for the past two years, the students had the option of taking a residency program in lieu of the NERB. If the residency was completed satisfactorily, the student could apply for licensure in NYS. This will become law in 2007, at which time students will not be allowed any more to take a board exam; they all must satisfactorily complete a residency for licensure in NYS.

- **WVU**: We have always been able to locate suitable lesions necessary for the board so far. We do have a little more difficulty locating perio patients. Our Dean and restorative faculty members speak with the examiners each year, not so much to change the examination, but to let the examiners know what is taught at the school. Two of our faculty are NERB examiners so they have a very good idea about what the boards are looking for and communicate on a regular basis with fellow board examiners.
- **UWO**: Canada has no boards.

What recommendations would you make for improving communication with the Boards?

- **CWR**: This is now a moot point in New York State. (See previous answer)
- **UDM**: ADEA and the ADA have made some strides in this area. It is important for schools and individual faculty to continue to support these efforts. I think it would also be important for dental schools to begin a direct dialogue with their state board. It seems that a group of schools would be more effective than individual schools in this regard.

- ILL: No response
- **IND**: Allow the department representatives of the disciplines that are being tested talk to the Board members and develop a mutual open forum meeting with them for mutual education.
- **MICH**: Maintain a good relationship with the board examiners rather than an adversarial one. We have found that NERB has been supportive of our proposals if we support their efforts as well.
- **OSU:** Have a well-defined cycle of communication that clearly identifies when and who should participate and will also define problems of patient availability and policy of preparation, including bases and liners.
- **PITT**: No response
- SUNY: No response
- WVU: No response
- UWO: N/A

2004 Regional CODE Agenda

Region IV School Abbreviations

CWRU	Case Western Reserve	OSU	Ohio State University
UDM	University of Detroit Mercy	PITT	University of Pittsburgh
ILL	University of Illinois-Chicago	SUNY	State University of NY-Buffalo
IND	Indiana University	WVU	West Virginia University
MICH	University of Michigan	UWO	University of Western Ontario

I. After teeth have been endodontically treated by dental students what is your policy on the restoration of the tooth? How soon is it restored after obturation? What is the preferred type of restoration (full crown, onlay, amalgam, composite restorations)?

- **CWR**: We try to have students place final restoration as soon as possible within 4-6 weeks. Preferred type of restoration: depends upon amount of tooth structure remaining, location of tooth, patient's age, caries rate, final treatment plan, in other words not all teeth are post and cored, nor are they all "capped."
- **UDM**: As soon as possible following successful obturation, a core is placed. For anterior teeth, cast post and core are used. For posterior teeth, amalgam is most often used as a core, either with a prefabricated post or without one as a chamber-retained core. We try to avoid placement of a post whenever possible. Composite core material is also used in certain situations. Teeth are most often then restored with a full coverage crown. For some anterior teeth with only an access opening, a composite restoration is placed.
- ILL: No response
- IND: Restore as soon as possible. Posterior teeth restored with crowns. Anteriors get crowns if significant loss of tooth structure warrants full coverage (most cases). Composites are used on anteriors if crowns aren't necessary. We do not always cast posts. Pre-fab posts are occasionally used on molars (not single rooted premolars).
- MICH: Anterior teeth: Composite resin in endo access if minimally restored. Post/core & crown if heavily restored
 Posterior teeth: Full cuspal coverage required (either cuspal coverage amalgam, onlay crown, depending on the individual situation such as esthetic needs, finances, remaining tooth structure, patient desires). Composite not be acceptable in the posterior region as a final restoration. Posts are used only when needed to retain the core. Teeth may be restored immediately after obturation.

OSU: Restore as soon as possible. Endo is not started unless a student's patient agrees to a future restoration protecting the tooth. Restoration time varies in the clinics. The goal is to restore as soon as possible. Amalgam cores or cast post and cores are the standard foundation restorations. Generally, posterior teeth are restored with a porcelain/metal crown; less frequently with full cast crowns. The goal is to have cuspal coverage, but we find onlays are infrequently done. Anterior teeth restored with whatever restorative material is needed; there is no requirement for full coverage.

PITT: No response

SUNY: All teeth determined to need endodontic therapy must have all caries excavated to endodontic treatment. It is recommended that these teeth then be restored as soon as possible, unless endodontic treatment has a guarded prognosis. A number of restorative materials are used, in different fashions. We teach that all endodontically treated teeth must have cuspal coverage as part of the final restoration.

Full crown: Because there generally is significant loss of tooth structure, this is probably the most common mode of final restoration. The crown is generally placed over a core of either amalgam, which may be retained by stock posts or by amalgam condensed into the canals, or composite, which is retained by stock posts. If not a lot of coronal tooth structure remains, we make an attempt to 'tie' the coronal portion of the tooth to the root structure with posts.

Onlay: Not used very often because of significant loss of intracoronal tooth structure.

Amalgam: Generally only as a core, with posts or amalgam 'pins', unless the preparation is designed to onlay the cusps with the amalgam.

Composite: Generally only as a core in posterior teeth where there is a amount of tooth structure remaining; or if retained by posts. Also, sometimes used in anterior teeth where there is only a small access opening, and no other restorations present in the tooth.

Cast posts are used for single rooted teeth.

- **WVU**: No specific delay following a successful obturation. Amalgam is preferred core material. Composites placed as well. Prefer cusp coverage. Onlay>Crown.
- **UWO**: At Western there is a requirement for the student to place a final restoration in order to obtain credit for the endodontic treatment. We are recommending the final restoration be placed as soon as possible as long as there are no post-op symptoms. In practice this is usually within two weeks of the obturation of the canals. The preferred restoration is a gold onlay for posterior teeth (or a gold crown if the tooth is badly broken down), and composite resin for anterior teeth. In practice, amalgam is most often used in the posterior region due mainly to the reduced cost. "Shoeing" of the cusps is a priority with both gold and amalgam. Depending on the remaining tooth structure, posts alone or post-cores may be used.

- II. When students expose the pulp what is your school/restorative department treatment protocol? With a carious exposure? With a non-carious exposure? What is the position on indirect pulp capping and direct pulp capping?
 - CRW: Carious exposure In general, endodontic therapy initiated or strongly recommended whether tooth asymptomatic or not.
 latrogenic exposure small. If isolated with rubber dam and tooth asymptomatic light cure Calcium hydroxide, place final restoration see the CASE flow sheet on previous page.
 If not isolated with rubber dam In general endodontic therapy initiated strongly recommended whether tooth asymptomatic or not.
 - UDM: The UDM restorative department supports direct pulp capping. Direct pulp capping is indicated only when there is absence of caries, the tooth is asymptomatic, no apical radiolucency, small size pulp exposure with no pulp hemorrhage and rubber dam isolation (i.e. no contamination of the pulp by saliva). The patient's general condition and age are also considered. Procedure: Immediately after a pulp exposure occurs, a thin layer of calcium hydroxide is applied exclusively in the exposure site. Then the calcium hydroxide is covered with a resin modified glass ionomer (Fuji lining), and the indicated restorative material. If pulp exposure occurs and caries remains, endodontic treatment is indicated. Indirect pulp capping is also supported by the UDM restorative department using calcium hydroxide in areas of pulpal transparency cover by RMGI. The rationale for material selection is the good biocompatibility (Costa, 1999) and the stimulation of reparative dentin (Cox, 1994). Students are taught that the key element in a direct or indirect pulp capping is to achieve a good seal to prevent bacterial microleakage.
 - ILL: No response
 - IND: Carious exposures usually endo.
 Mechanical exposures large (over 1.5 mm) end: small pulp cap, wait and see. Indirect pulp capping is done when very close to the pulp (blushing).

MICH: Indirect pulp caps are allowed. Direct pulp caps are allowed for these situations:

- Small mechanical exposures (iatrogenic)
- Recent traumatic exposures (fracture
- Small (<0.5mm) carious exposures

The following conditions must be met in order to perform either an indirect or direct pulp cap:

- Vital pulp
- No history of spontaneous pain
- No lingering pain to hot or cold
- No percussion sensitivity
- No radiographic signs of periapical inflammation
- Exposure not contaminated by saliva/blood
- Bleeding is easily controlled by pressure (if direct)

Pulp capping would be <u>contraindicated</u> in the following situations:

- History of spontaneous pain
- Lingering pain to hot or cold
- Periapical lesion on radiograph
- Percussion sensitivity
- Swelling
- Large or contaminated exposures
- Uncontrolled hemorrhage from exposure site
- Primary teeth
- Tooth will be used as an abutment for a fixed or removal partial denture
- If prognosis is questionable and the tooth is important to the success of further restorative treatment

When pulp capping is done, a permanent restoration is placed to provide a well restoration to encourage healing and also to avoid retraumatization of the tooth by going back later to remove a temporary restoration.

OSU: We don't have a formal policy regarding these treatments.

Mostly, the treatment is left to the decision of the attending faculty member. In all cases, the patient is informed of the treatment and treatment alternatives (should the tooth need endodontic therapy later). If there is a carious exposure, it is referred generally to the endo or surgery clinics as the patient decides. Non-carious teeth might be treated with a direct pulp cap. However, there is a school policy that any tooth receiving a crown not have any type of pulp cap. Those cases must be treated endodontically.

PITT: No response

SUNY: Carious exposure - In an asymptomatic tooth, with a minimal exposure, and the absence of a hyperemic pulp, where all of the caries has been removed, we have students place a liner such as calcium hydroxide (dycal), and, if appropriate, a base, and then generally an amalgam is placed.

Non-carious exposure – the same as above.

For direct pulp caps: The treatment would be the same as indicated in the carious exposure question.

For indirect pulp caps: We have the student remove as much caries as we feel is safe to remove that day, and then have the student place dycal. A permanent restoration is then placed that same day. We currently do not have a resin-modified glass- ionomer available on our clinic floor. We are hopeful this will soon change, as a new restorative chair has recently arrived at Buffalo.

- **WVU**: Pulp caps are performed if the situation is suitable (minor exposure, field is isolated, bleeding stops). Use Dycal followed by Vitrebond, then either restorative material or IRM. We treat carious and non-carious exposure the same.
- **UWO**: If a student has a carious exposure they will start endodontic treatment or extract the tooth, depending on the patient's wishes at the time. With a non-carious exposure, if it is small (0.5 mm or less), and the pulp appears to be healthy, a direct pulp capping procedure is done. This includes hemostasis, application of a minimal amount of calcium hydroxide followed by a liner/base of glassionomer (RMGI) and the final restoration.

Indirect pulp capping is done when, on a radiograph, caries appear to be in close proximity to the pulp. Enough of the superficial caries is removed to allow for the placement of a temporary restoration (reinforced ZOE or G1). This is left in place for 3-4 months, another periapical radiograph taken. If there are signs of re-calcification of the deep dentin, the temporary restoration is carefully removed, a liner/base placed, followed by a final restoration. If no recalcification is noted, the possibility of endodontic treatment is considered. The tooth would be re-entered anyway, just in case there was enough calcified dentin to allow restoration of the tooth without endodontic treatment.

Suggestions for CODE

What can the organization do to improve its effectiveness?

Meet with the deans at ADEA and explain the importance of maintaining an operative within Restorative Dentistry. While not a recognized Dental Specialty, it is a highly specialized discipline. I only have to converse with some of my Restorative brethren (Pros, etc.) to realize how out of touch some of them are with materials, techniques, etc. used in direct and indirect restorations typical of Operative Dentistry.

What is suggested to improve the Web site?

http://netserv.unmc.edu/code/codeFrame.html

No suggestions, Everyone is pleased with the current WEB site

Other suggestions?

Suggested topics for next year's National C.O.D.E. agenda:

1. Repeated sterilization dulls burs and some methods create unacceptable corrosion on burs/diamond points. Does your school have this problem? What is your method of sterilizing burs/diamonds?

UWO have had a problem with bur/diamond corrosion during sterilization. After 4-6 cycles the burs are too corroded and dull to use. The burs are normally sterilized in bur caddies using an ultrasonic cleaning system, followed by steam sterilization, and drying. We have tried every combination of situations, but still have the problem. Schools using chemical sterilization alone don't seem to have the problem. Our problem is we have just recently installed a new steam sterilization system (at great cost). We may have to purchase a smaller dry heat unit to sterilize only burs/diamonds.

2. Have schools seen a problem with bonded composite cores associated with anterior teeth? A number of failures have been noted during temporization, but after the final impression had been taken.

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Peter Yaman	MICH		734-936-1597	

CODE REGIONAL MEETING REPORT FORM

REGION: V - Northeast

LOCATION AND DATE OF MEETING:

New York University

New York, New York

October 9 - 10, 2004

CHAIRPERSON:

Name: Dr. Richard Lichtenthal

Address: Columbia University

603 W 168th Street

New York, NY 10032

Phone #: 212-305-9898 Fax #: 212-305-8493

E-mail: rml1@columbia.edu

List of Attendees: Please complete the CODE Regional Attendees Form (enclosed at end of Agenda)

Suggested Agenda Items for Next Year:

LOCATION & DATE OF NEXT REGIONAL MEETING:

Name: Dr. Richard Lichtenthal	Phone #:	212-305-9898			
Address: TBA	Fax #:	212-305-8493			
	E-mail :	rml1@columbia.edu			
	Date:	ТВА			
Please return all completed enclosures to Dr. Larry D. Haisch, National Director, UNMC College of Dentistry; 40 th and Holdrege Streets; Lincoln, NE 68583-0750. Deadline for return: <u>30 Days post-meeting</u> Office: 402 472-1290 Fax: 402 472-5290 E-mail: lhaisch@unmc.edu Also send the information on a disk and via e-mail with all attachments. Please indicate the software program and version utilized for your reports.					
Ch. 5	Pg. 1	ARD\Staff\LDH\\CQDE\Code2004Manual			
2004 NATIONAL CODE AGENDA REGION V SUMMARY RESPONSES TO NATIONAL AGENDA

I. If bases are used under composites, what materials are being used? (Examples: glass-ionomer, flowables).

Glass ionomer liners are generally used under composite restorations. Liners are utilized under composites when the preparation is to within 1 mm of the pulp. Light cured liner in accessible areas, self cured in nonaccessible areas. Mechanical, thermal protection for the pulp and release of fluoride. At present only one school (Connecticut) in the region is using a self-etching bonding system because it is contained in the Bistite II DC kit used at the school. None of the other schools are presently using self etch bonding systems. Connecticut reports results have been satisfactory.

II. Describe your school's warranty policy for direct and indirect restorations done in the student clinics.

There is no "warranty" policy among the Region V schools. Remakes and replacements are done on a case by case basis, and decided by the restorative faculty. Region V schools vary from one to two years for "no fee" replacement of defective restorations, but could be extended beyond that in unique situations. Each situation is decided by clinical faculty on a case-by-case basis. There is no universal repair or replace philosophy, and the variations occur on a case-by-case basis. Direct or indirect restorations are treated similarly. Among those things considered are: finances, the condition of the remaining restoration, occlusion, access, symptoms, and the strategic nature of the restoration. Amalgam and composite restorations are treated similarly, case-by-case, according to the criteria mentioned. Patients of record are followed up and replacement restorations are provided at no additional charge by the student involved, if possible, or transferred to another student.

III. Some faculty of dental schools would like to see the use of some form of electronic patient record with the patient's photo as well as pre-treatment intro-oral photographs included in the record. Does your school use an electronic patient record , and if so, are these items included?

Schools in Region V do not use the electronic patient record at the present time. Many schools are moving toward an electronic patient record for implementation in the next several years. Most schools use conventional radiographs. A few use both conventional and digital with digital radiographs programs used primarily in the postdoctoral Endodontics and Prosthodontic programs.

IV. With the use of higher speed x-ray film, dental decay is becoming more difficult to see on radiographs. Discuss your school's use of film and the rationale for doing so.

The use of F-speed film results in slightly less contrast, but is mandated by Radiology. Most schools do not find it to be a hindrance in diagnosing caries. Most films that are difficult to read are probably the result of poor processing technique.

V. Is your school using electric handpieces?

The majority of the schools are not using electric handpieces. The two exceptions use them in their postdoctoral programs on a trial basis.

VI. Do you use the "Smart-Prep System" (SS White) of rotary instruments for selective dentin removal in student clinics?

Most of the schools do not use the "Smart Prep System" in their predoctoral programs. Two schools are using the system on a trial basis in extremely deep caries or near exposures, and report that they do not have enough evidence to comment on the efficacy of the system as yet, but that it looks promising.

VII. Often it is difficult to obtain suitable patients for student needs. They seem to be either too easy or too difficult. The teeth either have incipient dental caries or are grossly decayed.

Schools in the region have varying difficulty identifying patients with simple restorative lesions. Incipiencies are not treated with traditional restorative procedures and very large lesions are sometimes inappropriate for entry level students. Dealing with this problem requires initiative and luck. Some schools have subsidies enabling them to offer low cost or free dental care for patients not receiving public assistance. Arrangements with area hospitals or clinics allow for the rotation of students to those sites for an increased patient care experience. Sharing of patients between entry level, upper class students and graduate students can distribute the patients by degree of difficulty, but is difficult to administer and has only been partially successful. The use of simulation is widely utilized to enhance student experience.

VIII. Board examinations tend to require traditional tooth preparations and restorations. There is a decrease in the number of teeth requiring these types of preparations and an increase in smaller lesions requiring more conservative treatment.

Responses vary from no problem, to sometimes, to yes, definitely. Problems vary from availability of minimally acceptable lesions, to appropriateness of Board type restorations for minimal lesions. In all cases the problem is not overwhelming and works out alright, after a period of stress for students and faculties. Attitudes towards the regional licensing board varies from antagonistic to cooperative. Discussion has been initiated on several occasions over recent years. These dialogues have been useful in understanding the examination process, but change (such as the move to simulation and recently the CIF examination format of the NERB) usually comes from within the licensure board and rarely as a result of dialogue with CODE. Licensure Board members are invited to attend every annual meeting to participate in discussions with the schools representatives. These dialogues generally allow the schools representatives to express their opinions of the examinations and to offer suggestions for change. School representatives are invited to the NERB meeting annually to participate in small discussion groups regarding components of the exam. It is widely agreed that a continuing dialogue for change is needed on a regional and national level.

Regional CODE Agenda

To be established by the respective Region and Regional Director. Please also report on responses to the Regional Agenda from all participants).

Suggestions for CODE.

What can the organization do to improve its effectiveness?

What is suggested to improve the Web site? <u>http://netserv.unmc.edu/code/codeFrame.html</u>

Other suggestions?

2004 NATIONAL CODE AGENDA REGION V RESPONSES

(Please cite the evidence were applicable)

Region V School Abbreviations

BU	Boston University	MONT	University of Montreal
COL	Columbia University	UMNJ	University of Medicine-New Jersey
CONN	University of Connecticut	NYU	New York University
DAL	Dalhousie University	PENN	University of Pennsylvania
HARV	Harvard University	SUNY	SUNY-Stony Brook
HOW	Howard University	TEMP	Temple University
LAV	University of Laval	TORO	University of Toronto
UMD	University of Maryland	TUFT	Tufts University
MCG	McGill University	USN	USN Dental School

I. If bases are used under composites, what materials are being used? (Examples: glass-ionomer, flowables).

Flowable composites, light cured glass ionomer, resin modified glass ionomer, calcium hydroxide

What are the criteria or conditions used in making the decision to place a base.

Approximation to the pulp; to prevent post operative sensitivity in instances of deep penetration greater than 1 mm beyond ideal depth; thermal protection; flowables under packable composites to reduce voids in the corners of the preparation; reduce volume of composite that can be effected by polymerization shrinkage; adhesive in shallow preparations, glass ionomer and adhesive within 2mm of the pulp, calcium hydroxide, glass ionomer and adhesive in preparations that are less than 1mm from the pulp.

What is the rational for using the specific material?

Fluoride release in the case of glass ionomer cements, mechanical and thermal protection.

Is your school using self-etching bonding?

Only one school is currently using a self etching bonding system. A self etching primer system used in a dual cure luting system/Bonded enamel system – Bistite II DC.

II. Describe your schools warranty policy for direct and indirect restorations done in student clinics.

Most schools have no warranty policy – this is handled on a case-by-case basis. Those that do have policies are as follows: A two year replacement policy at no- charge for cases determined by Faculty; a replacement policy for direct and indirect restorations is generally one year at no-charge and have a "treatment deficiency", and if a restoration fails within one year it is replaced at no-charge.

Is there a "no charge for replacement" policy and how long would this usually be?

Determined by Department of Clinical Dentistry depending on the individual problem and based on the time of original placement. If a restoration fails within one year, it will be replaced free of charge. The policy could be extended for one year under unique circumstances determined by the Director of Restorative Dentistry. No charge for replacement based on reason for replacement, i.e. student operator error, patient error, poor oral hygiene, determined by clinic director with an occasional partial fee. Requires an administrative approval and situation dependent. Decisions are made on a case-by- case basis reviewed by supervising faculty using the following criteria: fracture, caries, wear, discoloration, size of existing restoration, strategic nature of tooth, patient financial situation. No standing policy. If failure is premature due to the fault of the student or faculty that should have been prevented. However, we believe that after a reasonable period of time (undefined on paper) the patient has ownership of the restoration and is liable for any repair or replacement costs.

Describe your repair vs. replacement philosophy in student clinics for direct or indirect restorations. Provide some guidelines – indications or contraindications for repair vs. replacement. Are there differences between amalgams and composites.

No difference between direct or indirect restorations. Moving toward a philosophy of minimally invasive dentistry and attempting to repair rather than replace in asymptomatic teeth a restoration the shows no deficiencies. Composite restorations are repaired with composite, amalgam restorations are repaired with flowable or hybrid composites. Repair is done when it appears to be in the best interests of the patient, eradicate caries or eliminate the defect and maintain the function of the tooth for a reasonable period of time. Repair and replacement are recognized as legitimate alternatives. A large restoration with a relatively small defect might be appropriate for repair whereas an extensive involvement of a large restoration or when dealing with a small restoration might be more logically addressed with replacement. Replacement may be avoided by trimming overhangs, removing flash, and remargination.

How does your school handle remakes of clinically unacceptable Board restorations that your graduates or other candidates do on school patients of record?

Patients of record are advised to come back for treatment at no additional charge. The CIF format allows follow up by the student candidates themselves. If endodontic treatment is required it is paid for by a special fund.

III. Some faculty of dental schools would like to see the use of some form electronic patient record with the patients photo as well as pretreatment intra-oral photographs included in the record. Does your school use an electronic patient record, and if so, are these items included?

We do use the electronic patient record, but do not use an electronic photograph or electronic intraoral photographs in the electronic record. (Most schools in the region do not use any electronic records at present)

What type of radiographic record does your school use - convention al radiograph or digital? Both?

Conventional photographs at present with plans for an electronic photograph at a later date.

If digital x-rays are used, what are the legalities involved and how do you deal with them?

No responses from regional schools

IV. With the use of higher speed x-ray film, dental decay is becoming more difficult to see on radiographs. Discuss your schools use of and the rationale for doing so.

Use F speed film, contrast not as good, use special collimator to increase contrast. We are using F speed film exclusively as part of our radiation protocol. We have not found a significant difference in our ability to diagnose caries. Currently Kodak Insight film is the only film used for all radiographs. The radiologist at the school does not support the use of D speed for bitewing radiographs. The quality and consistency of radiographs at the school for diagnosis of caries is more effected by the processing equipment, solutions and procedures. Oral and maxillofacial radiology makes the decisions as to what film to use. The least amount of radiation is the driving force for decision. The intention is to go all digital in the future. There is learning curve to using F speed. The use of F speed is mandated by the state (Pennsylvania). F speed not adequately diagnostic for caries, it is good endodontics.

V. Is your school using electric handpieces?

No schools in the region use the electronic handpiece in predoctoral program.

What make?

One school is using the Midwest Stylus in the AEGD program on trial basis.

Where are they being used?

One school is using the Midwest Stylus in the AEGD program on trial basis.

Describe/discuss the pros and cons of the handpieces.

There is a learning curve in dealing with the high torque.

VI. Do you use the "Smart Prep System" (SS White) of rotary instruments for selective dentin removal in student clinics.

Two schools in the region are using the smart prep system.

Describe how often it is used, what your indications are and give technique details if different from the manufacturer's instructions.

The system is used in the selective "caries risk assessment" lecture series. Faculty use it in the operative clinic on a trial basis. It is used only in deep preparations or near exposures.

What is your opinion of these instruments.

It is too early to comment on effectiveness and efficacy.

VII. Often it is difficult to obtain suitable patients for student needs. They seem to be either too easy or too difficult. Does your school have difficulty acquiring suitable patients/conditions for students?

It is a problem to a degree but we manage to get through it. It is a challenge. (Most schools feel that they manage to have a sufficient number of patients in all categories, although there is a decrease in the moderate cases)

If so how do you deal with this problem?

We screen a substantial number of patients requiring complex care to accept a few patients requiring simple care. Our graduate programs are very busy. There is considerable variation among our student body as to experience. We use externship and community programs as well as advertisement within our own and nearby universities/colleges. Fourth year students are asked to select simple operative needs for the beginning third year students to treat. Each third year student is paired with a fourth year student and they share some aspects of patient care. In grossly decayed cases, faculty preceptors may have to provide some of the care. We have a program with the VA which provides additional opportunities. There are organized screening opportunities through community dentistry and outreach programs. Offer low cost or free care to patients not eligible for insurance or social service support.

VIII. Board Examinations tend to require traditional tooth preparations and restorations. There is a decrease in the number of teeth requiring these types of preparations and an increase in smaller lesions requiring more conservative treatment. Is this a problem at your school or for your students doing Board examinations.

A challenge, but not a problem. It has been extremely difficult to identify suitable restorative cases for our board candidates. Sometimes it is, but it does work out. Finding ideal lesions has been an ongoing problem. Many times multiple radiographs are taken to get the ideal film for acceptance by board examiners. The defined operative treatment of enamel only lesions for licensure has been addressed by our regional CODE group – but not directly by the school. Pursuing this course is viewed by the Department Chair and administration as being counterproductive to student performance on licensure boards. The cases needed for the board criteria do exist and the parameters for the exam are broad enough to be accommodated. Case selection is of ultimate importance. People look for the bare minimum carious lesion and may not expand the criteria to accommodate the existing cases. (Generally speaking, finding ideally suited cases is a problem for student candidates and the faculties responsible.)

Has there been any attempt to discuss the problem with the Licensure Board?

Educators are invited to attend the annual NERB meeting. Members of the board have been invited to attend each annual CODE regional meeting. This year our regional meeting was attended by the officers of NERB.

What attempt was made and what was the outcome ?

This is more of an informational exposure by NERB for educators rather than a true dialogue for change. Sometimes they attend, generally not. This turned out to be fairly productive, although no substantive results can be reported at this time.

What recommendations would you make for improving communication with the Boards?

Meetings and dialogues should continue on a regional and national level. The consensus is that meetings and dialogues are good, but that change will come from within the organization on their timetable and not because of our recommendations.

Regional CODE Agenda

To be established by the respective Region and Regional Director. Please also report on responses to the Regional Agenda from all participants).

Suggestions for CODE.

What can the organization do to improve its effectiveness?

What is suggested to improve the Web site? <u>http://netserv.unmc.edu/code/codeFrame.html</u>

Other suggestions?

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CODE REGIONAL MEETING REPORT FORM

REGION: VI (Southeast)

LOCATION AND DATE OF MEETING:

University of Louisville

Louisville, KY

October 20 - 22, 2004

CHAIRPERSON:

Name: Dr. Gary Crim	Phone #:	(502) 852-1303
Address: University of Louisville	Fax #:	(502) 852-3364
501 South Preston Street	E-mail: gcrim01@	louisville.edu
Louisville, KY 40202		

List of Attendees: enclosed at end of Region VI Meeting Report Information

Suggested Agenda Items for Next Year:

LOCATION & DATE OF NEXT REGIONAL MEETING:

Name: Dr. Roosevelt Smith	Phone #:	(615) 327-6719
Address: Meharry Medical College	Fax #:	(615) 327-6213
1005 D.B. Todd Blvd	E-mail :	rstroma@earthlink.net
Nashville, TN 37208	Date:	ТВА

Please return all completed enclosures to Dr. Larry D. Haisch, National Director, UNMC College of Dentistry; 40th and Holdrege Streets; Lincoln, NE 68583-0750. Deadline for return: <u>30 Days post-meeting</u> Office: 402 472-1290 Fax: 402 472-5290 E-mail: lhaisch@unmc.edu Also send the information on a disk and via e-mail with all attachments. Please indicate the software program and version utilized for your reports.

2004 NATIONAL CODE AGENDA REGION VI SUMMARY RESPONSES TO NATIONAL AGENDA

I. If bases are used under composites, what materials are being used? (Examples: glass-ionomer, flowables).

Majority of schools use glass ionomers

What are the criteria or conditions used in making the decision to place a base?

Preparation encroaching on pulp

What is the rational for using the specific material(s)?

Depth of preparation in dentin, thermal protection, physical properties, biocompatible, fluoride release

Is your school using self-etching bonding systems?

Only 3 schools are using self-etching systems

What system is used and what evidence was used in making this selection?

Clearfil SE Bond

What has been the outcome?

Mixed results.

II. Describe your school's warranty policy for direct and indirect restorations done in the student clinics.

Most schools have no formal warranty policy

Is there a "no-charge for replacement" policy and how long would this usually be?

Most schools consider replacement, but the time period varies

Describe your repair vs. replacement philosophy in student clinics for direct and indirect restorations. Provide some guidelines - indications or contraindications for repair vs. replacement. Are there differences between amalgams and composites?

Most schools will consider repair or replacement depending on the condition of the restoration, presence of caries

How does your school handle remakes of clinically unacceptable Board restorations that your graduates or other candidates do on school patients of record?

Responses varied widely, from no consideration to referral to appropriate clinics

III. Some faculty of dental schools would like to see the use of some form of electronic patient record with the patient's photo as well as pre-treatment intra-oral photographs included in the record. Does your school use an electronic patient record , and if so, are these items included?

Only two schools utilize some form of electronic records. Items include financial data, treatment plans, and daily encounters

What type of radiographic record does your school use - conventional radiograph or digital? Both?

All schools use conventional radiographs. Digital format is minimally utilized

If digital x-rays are used, what are the legalities involved and how do you deal with them?

Guidelines at this time refer to HIPAA

IV. With the use of higher speed x-ray film, dental decay is becoming more difficult to see on radiographs. Discuss your school's use of film and the rationale for doing so.

Films used are Kodak DF58 and E type film. The rationale is to obtain the most diagnostic radiographic information possible while keeping radiographic exposure at a minimum.

V. Is your school using electric handpieces? What make?

No school routinely used electric handpieces in the undergraduate clinics

Where are they being used?

Specialists clinics or faculty practice

Describe/discuss the pros and cons of the handpieces.

Pros – constant torque through out the RPM range, smooth and quiet cutting Cons – cost, need for electrical outlet

VI. Do you use the "Smart-Prep System" (SS White) of rotary instruments for selective dentin removal in student clinics? Describe how often it is used, what your indications are and give technique details if different from the manufacturer's instructions.

Not used in any undergraduate clinics.

What is your opinion of these instruments.

Scientific evidence for use is lacking, technique sensitive.

VII. Often it is difficult to obtain suitable patients for student needs. They seem to be either too easy or too difficult. The teeth either have incipient dental caries or are grossly decayed. Does your school have difficulties in acquiring suitable patients/conditions for students?

Generally schools are experiencing difficulty

If so, how do you deal with this problem?

Use of simulation, rotations to satellite, periodic mass screenings

VIII. Board examinations tend to require traditional tooth preparations and restorations. There is a decrease in the number of teeth requiring these types of preparations and an increase in smaller lesions requiring more conservative treatment. Is this a problem at your school or for your students doing Board Examinations?

Generally, yes.

Has there been any attempt to discuss the problem with the Licensure Board?

Some communication has been attempted

What attempt was made and what was the outcome?

Most schools did not answer. Changes are generally slow.

What recommendations would you make for improving communication with the Boards?

Communicate techniques being taught, provide the Boards with evidence-based information

2004 NATIONAL CODE AGENDA REGION VI RESPONSES

(Please cite the evidence were applicable)

Region VI School Abbreviations

UAB	University of Alabama	MMC	Meharry Medical College
UFL	University of Florida	UNC	University of North Carolina
MCG	Medical College of Georgia	NOVA	Nova Southeastern
UKY	University of Kentucky	UPR	University of Puerto Rico
ULVL	University of Louisville	MUSC	Medical University of South Carolina
	VCU Virginia Commonwealth University		

I. If bases are used under composites, what materials are being used? (Examples: glass-ionomer, flowables).

UAB:	Mostly glass ionomer liners (RMGI) combined with the adhesive of choice. Also, Ca(OH)2 is used minimally if a clean, non-carious mechanical exposure occurs.
UFL:	Glass ionomer (Vitrebond) is used for D-3 (inner third of dentin) cavity preparations
MCG:	We currently use Vitrebond (3M, ESPE) as a base under composites
UKY:	Using GC Lining LC glass ionomer when appropriate. No flowables are being used
ULVL:	Resin-modified glass ionomer (Fuji II LC) mostly in Class II posterior composite resin restorations.
MMC:	Glass Ionomers, Flowable Composites – if close to pulp, Ca(OH)2 is used, followed by bonding agent
UNC:	RMGI and Calcium Hydroxide
NOVA:	Glass Ionomer (Vitrebond)
UPR:	Vitrebond, Vitremer/Rely X, Filtex Flow and Dyract Flow
MUSC:	Glass Ionomers (Vitrebond), calcium hydroxide (DyCal), flowables (Revolution)
VCU:	We use glass ionomer. Sometimes Dycal in deep preps. Recent research indicates that Dycal is probably of little use.

What are the criteria or conditions used in making the decision to place a base?

- **UAB**: Depth of the cavity preparation; Proximity with the pulp; Age of patient; Type of restorative material; Definitive restoration for the tooth; History of previous temperature hypersensitivity
- **UFL**: For preparations located in deep dentin or in the inner third
- **MCG**: If the remaining dentin thickness (TDT) is less than 1 mm, we would recommend basing.
- **UKY**: Subjective...depends primarily on clinical history, patient age, etc. (and the experience of the clinical instructor covering the student that particular day)
- **ULVL**: Class II: deep proximal margin on dentin. Deep axial wall with possible pulp involvement: calcium hydroxide with glass ionomer placed over the calcium hydroxide.
- MMC: Close to the pulp within 1-2 mm. If cast restoration inlay, onlay or crown
- **UNC**: Deep excavations, indirect and direct pulp exposures
- NOVA: Need to cover calcium hydroxide; remaining sound dentin; thermal insulation
- **UPR**: Glass ionomer for medium to deep cavities; Flowable composite to shallow cavities but in dentin
- **MUSC**: DyCal Within 0.5 mm of the pulp or on a direct pulp exposure. Vitrebond When fluoride is beneficial, when need to protect smear layer, and/or provide thermal insulation. Revolution As first increment in Class I and II composites.
- VCU: Criteria for use is generally based on depth/number of open tubules

References:

Dietrich T, Losche AC, Losche GM, et al. Marginal adaptation of direct composite and sandwich restorations in Class II cavities with cervical margins in dentine. *J Dent (England)*, Feb 1999, 27(2) p119-28
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Donly KJ, Segura A.Fluoride release and caries inhibition associated with a resin-modified glass-ionomer cement at varying fluoride loading doses. *Am J Dent (United States)*, Feb 2002, 15(1) p8-10
Alomari QD, Reinhardt JW, Boyer DB Effect of liners on cusp deflection and gap formation in composite restorations. *Oper Dent (United States)*, Jul-Aug 2001, 26(4) p406-11
Cannon ML A clinical study of the "open sandwich" technique in pediatric dental practice. *J Dent Child (Chic) (United States)*, Jan-Apr 2003, 70(1) p65-70
Dietrich T, Kraemer M, Losche GM, et al. Influence of dentin conditioning and contamination on the marginal integrity of sandwich Class II restorations. *Oper Dent (United States)*, Sep-Oct 2000, 25(5) p401-10
Dietrich T, Losche AC, Losche GM, et al. Marginal adaptation of direct composite and sandwich restorations in Class II cavities with cervical margins in dentine. *J Dent (England)*, Feb 1999, 27(2) p119-28

What is the rational for using the specific material(s)?

- **UAB**: Resin Modified Glass Ionomer (RMGI) liners are compatible with resins, have the ability to create a thermal barrier, chelation with the dentin
- **UFL**: Glass ionomer materials have excellent physical properties, with the conventional versions offering excellent modulus of elasticity and restoration support
- **MCG**: Glass lonomers are generally more biocompatible than resins. The following policy covers both amalgam and composite materials:

Divisional Policy on Direct & Indirect Pulp Capping

- I. Indirect Pulp Cap
 - To protect the pulp against <u>possible</u> injury and to stimulate healing and repair
 - Near or suspected exposure
 - Normal pulpal response, no periapical pathology
 - Rubber dam isolation greatly increases chance of recovery
 - Recommendations:
 - Remove all peripheral caries except the last portion of the firm, leathery dentin immediately overlapping the pulp
 - Ca(OH)2 containing liner such as Dycal[™] and Life[™]. Confined to the area adjacent to the pulp only
 - Glass ionomer liners may be used to cover the Ca(OH)2 liner
 - Restore tooth with restorative material of choice
 - Advise patient of possible outcome
- II. Direct Pulp Cap
 - To protect the pulp against further injury and to stimulate healing or repair
 - Small (<0.5 mm) mechanical exposure
 - Healthy pulp with no history of discomfort, no periapical pathology
 - Rubber dam isolation greatly increases chance of recovery Recommendations:
 - Stop bleeding with sterile paper point/cotton pellet
 - Ca(OH)2 containing liner such as Dycal[™] and Life[™]. Confined to the area adjacent to the pulp only
 - Glass ionomer liners may be used to cover the Ca(OH)2 liner
 - Restore tooth with restorative material of choice
 - Advise patient of possible outcome
- III. Caries Exposure
 - History of pain/discomfort
 - Radiograph evidence of periapical pathology
 - Lingering pain after hot or cold stimuli

Recommendations:

- Remove all peripheral caries
- Rubber dam isolation greatly increases chance of recovery

- Sedative restoration with IRM
- Endodontic consultation

In line with our clinical policy, unrecognized pulpal exposure during cavity preparation will result in a critical incident report.

- **UKY**: Fluoride release, strength, bonding capacity. Some faculty feel it lends pulpal protection; others do not.
- ULVL: Lower microleakage in extended base restorations,
 - Resin-modified glass-ionomer cements inhibit adjacent demineralization of tooth structure.
 - Glass ionomer, placed and cured before the bonding agent, was associated with lowest deformation of cusps and gap formation in MOD resin composite restorations. Low elastic modulus liners may reduce the deformation by absorbing polymerization shrinkage stress.
 - Sandwich restorations with resin-modified glass ionomer seem to be less sensitive to contamination with saliva and blood.
- **MMC**: The need for thermal protection, sealing dentin or block-out undercuts for cast gold.
- **UNC**: RMGI is recommended for deep excavations where the remaining dentin thickness (RDT) is expected to be more than 1mm. CH cement is recommended for deep excavations where the RDT is expected to be less than 1mm, and for direct micro-exposures. CH, when used, should be covered with RMGI prior to composite placement. The above materials are used for pulp protection.
- **NOVA**: Clinical success, physical properties
- **UPR**: Depth in dentin and stress relaxation (elastic bonding concept)
- **MUSC**: Calcium hydroxide to stimulate secondary dentin in areas of direct pulp exposure or possible microscopic pulp exposure and alter pH of adjacent dentin. Glass ionomer – fluoride benefit for demineralized dentin, protect CaOH base, when using selective bonding technique. All are predictable, proven, and reliable.
- VCU: We're moving to Solo and this is based on literature review/materials science review

Is your school using self-etching bonding systems?

- UAB: No
- UFL: No

MCG:	None in clinic. We demonstrate and use different systems in preclinical OP Dentistry and Dent Materials labs
UKY:	No
ULVL:	No
MMC:	Yes - but separate etch of enamel is also taught - using 37-50% acid
UNC:	No
NOVA:	Not yet
UPR:	Yes, we use self-etching bonding system
MUSC:	Yes
VCU:	No
What sys	stem is used and what evidence was used in making this selection?
UAB:	N/A
UFL:	N/A
MCG:	N/A
UKY:	N/A
ULVL:	N/A
MMC:	SE Bond Clearfil and Henry Schein - Universal Bond. CRA - Clinical Research Associates

- UNC: N/A
- NOVA: N/A
- **UPR**: Prompt L-Pop/Adper. We used it because 3M introduced it and advertised it over Single Bond
- MUSC: Clearfil SE Bond. Extensive evidence in literature over 8 years at least
- VCU: N/A

What has been the outcome?

UAB:	N/A

- UFL: N/A
- MCG: N/A
- UKY: N/A
- ULVL: N/A
- MMC: Excellent results with SE Bond. Henry Schein's Universal Bond good
- UNC: N/A
- **NOVA**: Self-etch will not be used until more evidence is available
- **UPR**: Outcome mixed results. Several Class IV done by students came off.
- MUSC: Excellent results except that metal band is sometimes bonded to composite
- **VCU**: No response

II. Describe your school's warranty policy for direct and indirect restorations done in the student clinics

- **UAB**: There is no formal "warranty" issued with the restorations done in our clinics. Notes are made as to any need to replace the restoration and the reason. If it appears to have been a technical or technique-related problem, we replace the restoration at no-cost or give the patient credit for what was charged.
- UFL: No response
- MCG: It is decided on a case-by-case basis
- **UKY**: Somewhat subjective here depending on the particular situation, but basically will replace a restoration if indicated within "a year or so"

- **ULVL**: We don't have a formal warranty policy. Restorations placed by our students are replaced at the discretion of the clinic faculty member covering the case. The faculty/student submit a Quality Assurance Form to the office of clinic affairs with the recommendation. The only person(s) authorized to refund money to a patient are: the Associate Dean for Clinics and Postdoctoral Education and the Clinic Operations Manager.
- **MMC**: Quality Control Clinic evaluates patients make decisions on referral back to student clinics based on time period and problem of patient
- **UNC**: No formal policy
- **NOVA**: No formal warranty
- **UPR**: School's warranty policy for direct and indirect restorations done by the students is handled by the Assistant Dean for clinical affairs
- **MUSC**: No response
- VCU: Basically there is a one year policy. We have a QA system that does random QA of restorations. Also, many faculty make decisions to replace at no-cost 1-2 years out. Repair/replace no real definitive guidance; up to faculty members. Seems to be based on presence of micro leakage, if any detection of leakage = replace entire restoration. If it is a structural defect with no caries, maybe a repair.

Is there a "no-charge for replacement" policy and how long would this usually be?

- **UAB**: Most problems that arise that can be directly related to a procedure performed within a year are replaced or corrected at no-cost.
- **UFL**: No charge for replacements within a year. Adjustments in the replacement costs after one year are determined by faculty on a case-by-case basis.
- **MCG**: In general, if the restoration fails within a year, the clinical faculty can recommend no-charge for the replacement, but it is up to the associate dean for patient services to decide
- **UKY**: As above, approximately one year
- **ULVL**: We don't have a "no-charge for replacement policy." The situation is handled as noted above
- **MMC**: No charge if within five (5) year period

- **UNC**: Determined on a "case-by-case" basis
- **NOVA**: As a rule, patients that are under treatment are not charged for re-do's. Keep in mind that some patients are in the system for more than one year
- **UPR**: No-charge is the decision of the Assistant Dean for clinical affairs. Usually any restoration that does not last over 6 months
- **MUSC**: Usually will re-do within one year for no-charge. Sometimes depends on reason for failure. Usually decide in favor of the patient if any question
- **VCU**: No response

Describe your repair vs. replacement philosophy in student clinics for direct and indirect restorations. Provide some guidelines - indications or contraindications for repair vs. replacement. Are there differences between amalgams and composites?

- **UAB**: There are situations when a repair is not deemed acceptable (caries, lack of resistance or retention form of the restoration/tooth, occlusal problems, excessive wear, open margins with suspicion of recurrent caries). We <u>DO NOT</u> encourage the students to repair most directly placed restorations (amalgam or composite), specially if there is no record of when the restoration was placed. Exceptions may be made to patients of record with a History of Treatment and a clear clinical indication that the restoration has acceptable margins without recurrent caries and is a serviceable restoration. Typical scenarios may be:
 - 1. a Class IV composite with a small fracture of the material;
 - 2. a very extensive posterior restoration deserving of full cast restoration with ditched and clean margins and a patient who cannot afford (ideally) a cast restoration;
 - 3. very visible and accessible defects at crown margins when the patient cannot afford replacement.
- **UFL**: First choice of treatment is repair. Composites are repaired with composites. Amalgams are repaired with either composites or analgams
 - Replacement is done when:
 - the area needing repair is inaccessible
 - extensive caries under the restoration (remaining caries)
 - small unretentive original restoration remains (amalgam)
 - poor esthetics
 - radiolucent composite restorations where difficult to determine presence of caries

MCG: <u>Guidelines for amalgam restoration replacement</u>

Based on evidence-based literature review, the following criteria are proposed as guidelines for amalgam restoration replacement; much of the same evidence can be applied to composite restorations also:

- 1. The restoration is missing.
- 2. Gross fracture through the body of the restoration (*Letzel & others, 1989*).
- 3. Irrefutable clinical evidence of marginal caries, the removal of which compromises the integrity of the remaining restoration.
- 4. Combined clinical and radiographic evidence of marginal or internal caries. Consideration must be give to the possibility for presence of a radiolucent base (*Kidd*, *Joyston-Bechal* & *Beighton*, *1994; Hewlett* & *others 1993*).
- 5. Restoration moves in the preparation when examined.
- 6. Poor proximal contour with evidence of new dental disease (caries, periodontal, occlusion) (*Parsell & others, 1998*).
- 7. Gross color mismatch and patient desires cosmetic replacement.
- 8. Margin discrepancies between restoration and tooth which can be probed at a width >0.4 mm on an occlusal surface margin should be given careful consideration but not necessary replaced (*Kidd & O'Hara, 1990; Kidd, Joyston-Bechal & Beighton 1995*).
- 9. Margin discrepancies between restoration and tooth (>0.2 mm) at the cervical or cervical third of the proximal (*Klausner, Green & Charbeneau, 1987; Derand, Birkhed & Edwardsson, 1991*).
- 10. Fracture of the tooth structure such that the integrity of the existing restoration is compromised (*Akerboom & others, 1993*).
- 11. If there is a substantial margin overhang causing periodontal problems which cannot be removed through alternative means (*Kells & Linden, 1992; Parsell & others, 1998*).

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- **UKY**: No real difference between amalgams and composites as far as marginal breakdown/open margins go .. we'll replace those within a year. Staining or esthetic concerns again are subject to faculty evaluation as it clinically presents. The criterion is somewhat subjective, but obviously a carious or open margin will be replaced. Continued sensitivity will prompt a restoration's removal if needed for assessment. The "gray areas" are where a faculty will have to make the final determination and/or refer to the Associate Dean of Student Clinics for a decision
- **ULVL**: Repairs/refurbishing of direct restorations is taught in the pre-clinic Operative course. Whether they are done in the clinic is up to the discretion of the faculty. Amalgams with marginal defects are marginated by finishing and polishing when possible (i.e. no evidence of caries and the restoration is otherwise sound). Composite restorations that have been in place for a significant period of time are rarely repaired. When repairs are done, we probably repair those done by our students more frequently than restorations done by other dentists. We do not use indirect restorations (composite) except on rare occasions.
- **MMC**: Yes, amalgams are usually removed and replaced entirely. Composites are replaced if margins are involved in the defect.
- **UNC**: Same as UFL
- **NOVA**: For direct restorations: both amalgam and composite repair procedures are acceptable depending upon the extent, location, accessibility, and prognosis of the treatment area. Small amalgams are generally replaced. Large amalgams repair if the defect is small and the remaining restoration is satisfactory. Small composites are generally replaced. Large composites with clinically acceptable bond repair if the defect is small and the remaining restoration is satisfactory, with the understanding that stain is likely to occur at the new bond interface.
- **UPR**: Margins of crowns or bridge abutments that are functioning okay and without sensitivity are tried for repair of accessible margins or porcelain repairs. Telescopic crowns sometimes considered to replace ceramic loss at pontic areas. There are fractures of buccal or lingual cusp (especially on premolars) which MOD amalgam restorations remain intact. For those cases we consider to prepared teeth for direct composite laminates leaving the proximal contacts in amalgam. Outcome has been successful and another opportunity is given to those teeth before engage in pin-retained amalgam or a root canal due to lack of sound structure. When caries is the reason direct composite restorations are replaced.

- **MUSC**: All are considered on an individual basis (direct/indirect; amalgam/composite). If the restoration is large and the bulk of the restoration is intact, caries risk assessment for the patient is not high, a repair is likely to be retained, resist fracture, and be esthetic where esthetics are a concern, then a repair is considered. Sometimes it is easier and more predictable to replace the entire restoration and not repair, however each time the tooth is entered, there is potential for damage to the pulp and judicial use of repairs where indicated can minimize this damage
- **VCU**: See above answer

How does your school handle remakes of clinically unacceptable Board restorations that your graduates or other candidates do on school patients of record?

- **UAB**: One faculty member who serves as liaison to the Board keeps a log of the patients who must be seen either in our clinic or by a private dentist. The patient is notified after the exam.
- **UFL**: There is no special consideration given for these patients. They will be assigned to a student and treatment will be given and charged just like any other patient.
- MCG: The patients are referred back to the student clinic for continued care and monitoring
- **UKY**: We simply replace them no charge...often a faculty member will do these
- ULVL: Remakes are done at no charge to the patient
- **MMC**: The patients that received unacceptable restorations are referred back to the student clinics for corrections of defective restorations usually by another student/faculty team
- UNC: No response
- **NOVA**: If these patients were either private patients or selected by a board prep course vendor, they receive limited care and as such are not registered patients of the institution. Should they request or need additional care, they would have to register as a patient (which would include a comprehensive examination and corresponding fees). The treatment plan recommendations and treatment estimate would then be determined. For patients of record of the school, they will not be charged additional fees for re-do's.
- **UPR**: Replacements of unacceptable Board restorations are handled through junior operative clinical rotation (no charge)
- MUSC: We will "make the restoration right" if on one of our patients of record
- VCU: Clinically unacceptable board restorations are redone at the school's expense

- III. Some faculty of dental schools would like to see the use of some form of electronic patient record with the patient's photo as well as pre-treatment intra-oral photographs included in the record. Does your school use an electronic patient record, and if so, are these items included?
 - **UAB**: No electronic record keeping at this time, but the school has looked at various systems with the intent of implementing electronic records.
 - **UFL**: Our school is now using electronic records for financial data, treatment plans, and daily encounters. Plans are to add all examination and charting data
 - MCG: No response
 - **UKY**: We do not have electronic patient records currently, but are investigating and evaluating a system
 - **ULVL**: We do not use electronic records
 - **MMC**: N/A not used at Meharry Medical College
 - **UNC**: Yes for the first question, and No for the second.
 - **NOVA**: The patient record is currently in both hard paper form and electronic. It does not yet include photographs routinely
 - **UPR**: We are not using electronic patient records
 - **MUSC**: No, not at this time. We are in the planning stage for a paperless record. Our patients do have an electronic treatment record in the clinic computer system (Axium), but no radiographs, photographs, etc., are included
 - **VCU**: We don't have electronic records.

What type of radiographic record does your school use - conventional radiograph or digital? Both?

UAB: Both. In the majority of the clinics, UAB uses conventional radiographs. Graduate Endodontics and Graduate Periodontics may use digital equipment.

- **UFL**: Our school is presently using conventional radiography; however, equipment has been selected and we should start implementation of digital system by end of year. Air Techniques photostimulatable plates for intraoral, extraoral, panorex, and cephs. Shick CCD's for Endodontics. Software will be Medicore M. Pacs. This system will support intraoral and extraoral photography, as well as radiographs, which are compatible with Quick Recovery.
- MCG: No response
- **UKY**: Conventional only
- **ULVL**: Standard is conventional radiograph; digital limited availability
- **MMC**: Both. Digital is used in the Endodontic clinic
- **UNC**: Currently only digital radiographs are used, but old records contain conventional films.
- **NOVA**: Radiographic technique includes conventional and digital. Endodontic radiographs are only digital
- **UPR**: We use conventional radiograph
- **MUSC**: Some clinic sections have digital radiography capability, but mainly conventional radiographs are used throughout the school
- VCU: We don't use digital films in the predoctoral clinic. We have recently purchased a WINDENT software system with intent to move to electronic record and digital films in the near future

If digital x-rays are used, what are the legalities involved and how do you deal with them?

- **UAB**: Digital records are kept within the departments and sometimes "printed" hard copies of the treatment are included in the patient's file.
- **UFL**: Not in use yet, so don't have an answer
- MCG: N/A
- **UKY**: No digital currently, but new radiology faculty is attempting to resurrect a previously utilized digital system for Endo only
- ULVL: N/A

- **MMC**: X-rays can be altered. Some insurance companies will not accept unless it specifies on the x-ray that is forwarded to them, that it has not been altered
- **UNC**: No response
- **NOVA**: Guidelines at this time refer to HIPAA. There should be no deviation from the conventional radiographs in the patient record for digital radiographs
- UPR: N/A
- **MUSC:** Operative uses only conventional radiographs
- VCU: N/A
- IV. With the use of higher speed x-ray film, dental decay is becoming more difficult to see on radiographs. Discuss your school's use of film and the rationale for doing so.
 - UAB: No response
 - **UFL**: Our school uses F E speed film which is recommended by our radiology specialists. Reasoning is less exposure
 - **MCG**: We are currently using E-speed film
 - **UKY**: Generally, we use E-speed film; however, D-speed is available on request for improved contrast
 - **ULVL**: According to research, F-speed film was not statistically different from E- or Dspeed film for caries detection.
 - Ludlow JB, Abreu M, Mol A. Performance of a new F-speed film for caries detection. *Dentomaxillofacial Radiology* (2001) 30:110-113.
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The National Council on Radiation Protection and Measurements Report 145: Radiation Protection in Dentistry (2003) states that "image receptors of speeds slower than ANSI Speed Group E films shall not be used for intraoral radiography."

- F-speed film resulted in 20% less radiation exposure than Ektaspeed Plus film. Nair MK, Nair UP. An in-vitro evaluation of Kodak Insight and Ektaspeed Plus film with a CMOS detector for natural proximal caries: ROC analysis. *Caries Res* (2001) 35:354-9.
- **MMC**: The School of Dentistry uses group E type film. The rationale is to obtain the most diagnostic radiographic information possible while keeping radiographic exposure to the patient, student, and dental staff at a minimum. As we expose patients to x-rays the ALARA principle (as low as reasonably achievable) applies. Techniques that can reduce the dose of radiation to the patient without compromising the quality of diagnostic radiographic information used. Thus high-speed film is used to prevent unnecessary radiation exposure and to control the exposure to radiation that the patient receives.
- **UNC**: We do not use film.
- **NOVA**: Bitewing radiographs are taken with "Insight" film. Any further clinical signs and symptoms may be indications for further radiographs as per ALARA. The radiology department's rationale is that the literature supports no difference among film speeds for caries detection.
- **UPR**: We use Kodak DF58
- **MUSC**: Choice of film is by the Oral Radiology director. We use a very fast film and the contrast suffers. We are told the present choice of film is an economic one
- VCU: Our radiology people disagree strongly with the idea that decay is more difficult to see with higher speed film. We use F speed because of the great reduction in radiation exposure.

V. Is your school using electric handpieces?

- **UAB**: Not undergraduate
- UFL: No
- MCG: No
- UKY: No
- ULVL: We have a couple to test

MMC:	Yes
UNC:	No
NOVA:	Not in the predoctoral clinic
UPR:	N/A
MUSC:	Only in the laboratory
VCU:	No response
What Ma	ake ?
UAB:	N/A
UFL:	N/A
MCG:	N/A
UKY:	N/A
ULVL:	Star Titan ® E-lectric Motor System
MMC:	Tulsa and J. Morita
UNC:	N/A
NOVA:	KaVo
UPR:	N/A
MUSC:	Brasseler
VCU:	N/A
Where a	re they being used?
UAB:	Faculty practice
UFL:	N/A

MCG:	N/A
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- UKY: N/A
- ULVL: One DMD clinic and in faculty practice by one faculty member
- **MMC**: Endondontics
- UNC: N/A
- NOVA: Faculty practice
- UPR: N/A
- MUSC: Only in the dental laboratory
- VCU: No response

Describe/discuss the pros and cons of the handpieces.

- **UAB**: No response
- UFL: N/A
- MCG: N/A
- UKY: N/A
- ULVL: Powerful, high torque, smooth and quiet cutting

MMC:	Pros:	constant torque through out the RPM range
		digital read out
		battery operated (small & portable)
	Cons:	need for electrical outlet
		need for electrical cord

- UNC: N/A
- NOVA: Pros: quiet, concentric, higher torque Cons: cost
- UPR: N/A

MUSC: Smooth, reliable, quiet, and good torque

VCU: No response

VI. Do you use the "Smart-Prep System" (SS White) of rotary instruments for selective dentin removal in student clinics?

- UAB: No
- **UFL**: Two of our faculty have the most experience with these burs and use them in a case-by-case basis
- **MCG**: None in the clinic. We will be introducing it as an adjunctive device in the pre-clinical lab this year.
- UKY: N/A
- ULVL: No
- MMC: No
- UNC: No
- NOVA: No
- UPR: N/A
- MUSC: No
- VCU: No response

Describe how often it is used, what your indications are and give technique details if different from the manufacturer's instructions.

- UAB: N/A
 UFL: The faculty use them to instruct the students as to what material should be removed in deep caries excavation to help prevent over aggressive dentin removal
 MCG: N/A
 UKY: N/A
 ULVL: N/A
- MMC: N/A

UNC:	N/A
NOVA:	N/A
UPR:	N/A
MUSC:	N/A
VCU:	N/A

What is your opinion of these instruments.

- UAB: N/A
- **UFL**: The faculty who use them feel they are very effective when removing soft caries in order to achieve an end point where indirect pulp capping can be achieved. The bur is less effective in leathery dentin which should be more aggressively removed at the periphery areas of the Preparation. The faculty who use them feel that they are an excellent teaching aide.
- **MCG**: The Smart-Prep bur would be helpful for a novice clinician. Technique sensitive, moderate learning curve, potentially expensive
- UKY: N/A
- **ULVL**: *IADR 2003, Abstr 0227 Polymer Bur for Carious Dentin Removal -Adhesive Bonds to Cariesaffected Dentin.* Polymer bur removal of carious dentin as compared to carbide results in dentin surfaces with lower bond strength for Optibond and Single Bond, while the bonds for PQ-1 were reduced, but not significantly
- **MMC**: Not enough information no one has used this type bur
- UNC: N/A
- **NOVA:** Difficult to get used to different tactile sense
- UPR: N/A
- **MUSC**: Unproven to date. Not the way to teach students to recognize and remove decay at this point
- VCU: No response

- VII. Often it is difficult to obtain suitable patients for student needs. They seem to be either too easy or too difficult. The teeth either have incipient dental caries or are grossly decayed. Does your school have difficulties in acquiring suitable patients/conditions for students?
 - **UAB**: At times, yes.
 - **UFL**: No. However, one concern is the cost of treatment and the inability of the patients to be able to meet the treatment costs and then drop out of the system
 - **MCG**: We seem to just be able to meet the needs of the students every year. Complete Dentures and endo experiences are probably the most common types of procedures that are in short supply. Recently we noted that many of our FPD patients were choosing implants so we had to reduce the expected number of FPD's to accommodate the changing demographics.
 - **UKY**: Yes, like everyone else
 - ULVL: Yes
 - **MMC**: We agree with this statement
 - UNC: Yes.
 - **NOVA**: Yes, in certain clinical disciplines: Endodontics, Periodontics, and Class II lesions in Operative
 - **UPR**: We have shortness of patients. It is difficult to compete with private practice because usually dental procedures take more appointments to be finished at the School. In addition, there is an active state insurance that provides access to dental care in private practice. We are going to advertise the school to get people's attention,
 - **MUSC**: Yes, it is an acute problem
 - **VCU**: No response

If so, how do you deal with this problem?

UAB: It seems to be a matter of synchronizing patient screening with assignment many times. So far the school has been able to provide undergraduate and graduate students with the appropriate patient load that is expected for graduation. The school has not had to resort to simulation means in order to overcome patient shortages, with the exception of Endodontics.

- **UFL**: Patients can do a contract and make monthly payments. The state for the past few years has given the school money to treat low income families. The largest portion of this money is divided among the senior dental students (\$1,000 each) to provide treatment to those patients who qualify.
- MCG: No response
- **UKY**: It's the annual scramble/panic as boards approach. We allow students to use less than ideal lesions for board prep clinical exercise to preserve the more ideal patients for the actual boards. Also, we encourage students to begin searching for patients early on. Procrastination can be deadly
- **ULVL**: Students receive credit regardless of whether the teeth are virgin or previously restored. For competency exams, students may use previously restored teeth as long as caries is present.
- **MMC**: Some procedures, such as Class III lesions are performed on "simulated" decayed teeth using the manikin. Outside rotations to satellite clinics is another way to gain more student experiences.
- **UNC**: No response
- **NOVA**: Periodic mass screenings in addition to the 50-60 screenings per week and 2 "private" patients allowed per student per session
- **UPR**: Will advertise
- **MUSC**: Increased initial patient screenings for new patients. Started a "Caries Management Clinic" where patients are accepted for disease control, completion of "urgent" operative, and then scheduled for comprehensive treatment plan and subsequent treatment if accepted for student assignment. This clinic also provides restorative treatment for patients identified by various sources in the school as needing limited operative dentistry. Result in many cases is that students are forced to work on teeth that are above their skill level
- VCU: No response

- VIII. Board examinations tend to require traditional tooth preparations and restorations. There is a decrease in the number of teeth requiring these types of preparations and an increase in smaller lesions requiring more conservative treatment. Is this a problem at your school or for your students doing Board Examinations?
 - **UAB**: Yes, it is a problem. Reasons: must screen enough "minimal caries" cases at one time for all the candidates; patient availability; the malpractice of overpreparing the teeth. Yes, it is a problem for teaching. We have taught more tooth preservation for years, but the examiners have not kept up with current philosophies.
 - **UFL**: Yes. The main problem is knowing that the criteria for a Class II amalgam for the board examiners is quite a bit less conservative than what is taught. Example: accepting E-2 lesions to do an amalgam preparation and restoration.
 - **MCG**: Of course, as it is everywhere. The most common scenario on boards is the restoration of incipient lesions that should be monitored with remineralization therapy or restored conservatively with minimal intervention preps.
 - **UKY**: Yes, "ideal" lesions are harder to find
 - **ULVL**: Yes, "Ideal" lesions are difficult to find
 - **MMC**: Yes, but usually the lesions are far beyond a conservative lesion, requiring more extensive restoration.
 - UNC: Yes.
 - **NOVA**: Somewhat. Many of the students use a service that provides patients and a prep course. In addition they will have patients in reserve in the event a patient is unacceptable to the examiners or is a no-show. Students will attempt to 'stockpile' patients for the exam, but it is difficult. Many take the prep course because of the "guarantee" of a patient (both Restorative and Perio)
 - **UPR**: Yes, there are fewer teeth for traditional cavity preparations. Board Examiner will continue to use patients for the state board exams. We are considering to invite them to participate as evaluator in competency exams.
 - **MUSC**: Not really. If they learn how to do the traditional preparations well, they can likely deal with teeth having very small lesions. As long as the board is willing to over-treat and allow use of incipient lesions which might be remineralized or restored very conservatively, this will be a concern.
 - **VCU**: No response
Has there been any attempt to discuss the problem with the Licensure Board?

- UAB: No response
- **UFL**: Yes, the dialogue between our school and the Licensure Board has improved considerably over the past couple of years
- **MCG**: Yes, and the board states appropriately that candidates are allowed to treat lesions other than the most recipient ones, however, the candidates prefer the most incipient lesions so they don't have to make decisions regarding the removal of caries since the minimum ideal conventional prep removes all of the defective tissue
- **UKY**: Undoubtedly
- ULVL: I believe that school representatives have met with SRTA examination boards
- MMC: Yes
- **UNC**: No response
- **NOVA**: There has been some communication with the Board, especially with the Endodontic exercise and the Class II amalgam preparation regarding parameters of tooth preparation.
- UPR: N/A
- MUSC: Yes
- VCU: No response

What attempt was made and what was the outcome?

- **UAB**: Meetings, courses, lectures, sharing of teaching material (textbooks, manuals, articles and handouts). Outcome: Board has not changed its philosophy of patient selection or treatment requirements.
- **UFL**: No changes in criteria as of yet
- MCG: Nothing has changed
- **UKY**: Perhaps the trend toward dentoform assessments are in part due to this issue, but non-clinical utilization and testing is far from universally acceptable to some board members and some faculty as well. It is a pragmatic compromise at best.

- ULVL: No response
- **MMC**: No response
- UNC: No response
- **NOVA**: The Board was agreeable to accept the parameters of traditional tooth preparation as taught at this institution
- UPR: N/A
- **MUSC**: Discussed at SRTA meeting....not much sympathy
- VCU: No response

What recommendations would you make for improving communication with the Boards?

- **UAB**: Our board of examiners makes clear to the school that we are separate entities and they are here to defend/look after the best interest of the public. And that is one of the school's missions as well.
- **UFL**: As mentioned above, the communication between our school and the Board has improved. They have met with our faculty and gone over the common errors made and how the scoring is done. We have also requested more specific criteria for preparations and restorations and have shared our criteria with the Examiners. Having a member or members of the board attend a CODE meeting would be helpful for improving communication
- **MCG**: Go to their meetings, and offer to update them on the latest concepts of evidence-based practice
- **UKY**: Our administration and board prep course director fosters and encourages an on-going dialogue with examining boards. This generally has been a productive exchange of concerns on both sides
- ULVL: No response
- **MMC**: More frequent communication on how we are instructing the students to restore certain types of lesions, especially Class III composites and full crown preparations. Meeting with the Board Examiners after the licensing exams for informal critiques
- **UNC**: No response

- NOVA: Provide the Boards with evidence-based information
 - Better communication in general
 - ADA-recommended directive for Boards to participate in Operative Dentistry or other relevant education-based meetings
- UPR: N/A
- **MUSC**: We communicate very well. Some board members, however, do not want to hear our recommendations. There might be some pressure put on the boards by the ADA, ASDA, ADEA, etc., to change their ways
- VCU: No response

2004 REGIONAL CODE AGENDA

Regional CODE Agenda - summary of discussion

I. Clinical Competency Exams List/describe all of your Operative/Restorative Clinical Competency Exams (direct restorative procedures).

All schools reported giving competency examinations. Formats varied widely.

Indicate when they are taken (specify the semester or quarter and the year - i.e. Fall, Jr.)

Most examinations are given in both the junior and senior year, time of year varies, usually both fall and spring semesters.

Give a brief description of how they are conducted- Group or Individual format, Scheduling- specific dates for Group exams or any day by the end of the semester for individual formats, blind or open grading, how many evaluators used.

Format varied from group exams to individual examinations, few were blind.

What percentage does the competency exams counts towards a course grade?

Range was from 20% to entire course grade.

How many chances does the student get to pass the exams and how is remediation accomplished for a failed attempt.

Answers varied from no chances before remediation was initiated to three chances. Remediation is generally individualized.

How do you determine if a student has maintained competency after passing each exam?

Some schools had daily grades, some continued competency exams, some other forms of clinical assessment.

II. Daily Clinic Grades Do you conduct daily grading in the clinics?

Roughly half of the schools had daily grading

What scale is used?

Answers ranged from percentage to a scale (1-4) to A-F

How much do daily grades count toward the final clinical course grade?

Reports ranged from 15% to 80%

Do you use daily grading to determine maintenance of clinical competency?

Roughly half do.

Does the faculty adequately discriminate in their grading (grade inflation) or is there usually a useful spread in the grades?

There was a general concern about grade inflation

III. Experience with Indirect Resin or All-Ceramic Restorations What approximate frequency are indirect resin or all-ceramic restorations being done in your student clinics? (less than or equal to 1/month, at least 1-2/month, greater than or equal to 1/week).

Experiences ranged from 3 per month to one per year or rarely

What materials or systems are you using?

Cristobal, Empress, Empress II, OPC – Optimal Pressable Ceramic system, Targis/Ivooclar, Procera, CEREC, Captek, Felspathic

Describe any special benefits or disadvantages that you have encountered with these restorations:

- Advantages: Esthetics, conservation of tooth structure, bonding less wear of opposing dentition.
- Disadvantages: Technique sensitive, cost, time, close supervision

IV. Predictors for Success on Licensing Exams

Have you found any correlation between student performance and success rates on Licensing Exams? (Class Rank, School Competency Performance, Mock Board Scores)

Correlation with mock boards and competency exams was reported

What mechanism do you have for remediating students that fail licensing boards before graduation, after graduation?

Most provide some form of remediation. Some utilize simulation

V. Utilization of new technology in teaching Operative Dentistry. Describe any new or innovative technologies or techniques that you use to teach either in the Pre-clinical Lab Course or the Operative Clinic. Examples- Digital Cameras for immediate feedback, or to record performance on competency exams, Innovative models to demonstrate concepts, unusual teaching styles for specific procedures or for struggling students.

ELMO projector, digital cameras, Black Board, computer testing system, intraoral camera, Virtual Reality Dental, portfolio

VI. Evidenced-based Practice

Give specific examples of the recent inclusion of evidenced-based dentistry into your Operative Dentistry Curriculum.

Most cite use of literature in choosing techniques and materials, a few schools include references in course manuals.

2004 REGIONAL CODE AGENDA

Region VI School Abbreviations

UAB	University of Alabama	MMC	Meharry Medical College		
UFL	University of Florida	UNC	University of North Carolina		
MCG	Medical College of Georgia	NOVA	Nova Southeastern		
UKY	University of Kentucky	UPR	University of Puerto Rico		
ULVL	University of Louisville	MUSC	Medical University of South Carolin		
	VCU Virginia Commonwealth University				

I. Clinical Competency Exams

List/describe all of your Operative/Restorative Clinical Competency Exams (direct restorative procedures).

UAB: Each exam has 3 or 4 evaluators (depending on the number of faculty teaching the course at the time. We vary between 3 and 4 each year for 60 students) with 2 faculty grading each part of each exam. The course director looks at all grade sheets and procedures and fills out a grade/critique sheet for each student. Double blind grading is used. These are not competencies in the strict definition of evaluating whether or not the student is ready to graduate and function without supervision. Remediation is not undertaken unless the student has a failing grade for the course.

Operative course, D1, all are an individual effort, but taken as a group in a limited/specified amount of time (3.5 hours each exam).

Winter quarter: Class I amalgam preparation exam; 20% of the course grade

Winter quarter Class II amalgam preparation exam; 20% of the course grade

- Winter quarter: Class II amalgam preparation X two and restoration of one preparation specified by the course director at the beginning of the practical exam; 20% of the course grade
- Spring quarter: Class IV composite preparation and restoration exam; 20% of the course grade

Restorative Review course, D2, all are an individual effort, but taken as a group in a limited/specified amount of time (3.5 hours each exam).

Spring quarter: Class II amalgam preparation exam; 23% of the course grade Class II amalgam placement and carving exam; 23% of the course grade UFL: Caries Management

Class II amalgam restoration, new or replacement Class II complex amalgam restoration, new or replacement Class II composite resin restoration, new or replacement Class III composite resin restoration, new or replacement Class IV composite resin restoration, new or replacement, NOT involving proximal contact Class IV composite resin restoration, new or replacement, involving proximal contact Class V amalgam restoration, new or replacement Class V amalgam restoration, new or replacement

Class V glass ionomer or compomer restoration, new or replacement Diastema closure (both sides)

Vr/	Course	Proficiency Exams	Competency Exams	% of Clinical Course
Sem	Course	(Prerequisites)	(Prerequisites)	Grade 50%
So/5	IPS 5901	Rubber dam (none)	N/A for sophomore year	
Jr/6		Class I amalgam/resin		CLI = 20%
	RES 5901	(Completion of IPS 5901)		CL II = 30%
Jr/7			Class II amalgam*	
			(5 CL II Ag & CL I Ag Prof)	
Jr/8		Cusp replacement amalgam	Class III or IV Composite resin *	Cusp repl = 10%
	RES 5902	(15 CL II & CL II competencies)	(5 CL III or IV composite resins)	Provisional = 10%
Jr/9			Provisional restoration	CL III = 30%
			(3 completed crowns)	
Sr/10	RES 5903		Class II Composite resin (2 CL II resins & CL	CL II = 15%
			II amalgam competency)	Impression = 15%
			Impression (3 completed crowns)	Crown = 20%
			Crown (Gold/PFM) (Completion of	
			10 indirect units)	
Sr/11	RES 5904			Mock Board =
				Competency for 5904
	MB 5901		Mock Board Exam*	
			Class II Amalgam*	CL II Amalgam = 16%
	2 Mock		Class III composite resin*	CL III Composite = 16%
	Boards*		Dentoform crown preps*	Crown preps = 12%
			PFM/Gold #19 or 30	FPD prep = 6%
			All-ceramic #8 or 9	
			3-Unit FPD	
			FPD self-assessment	

MCG: Operative and Fixed Prosthodontics Clinical Competencies

* Group Exams

All exams are done on an individual basis in regularly scheduled clinics except for the 2 junior group exams and the senior mock boards. These exams will be scheduled at specific times during the semester. All exams have prerequisite clinical experiences which must be met before the exams may be challenged (see course syllabus for details). Group Exams are conducted with blind grading to consensus by ²/₃ evaluators. Individual Exams (proficiency or competency) are not blind graded and a consensus of at least two evaluators determines the grade. Up to three attempts can be made to pass any clinical exam. Remediation varies with the errors committed. The student will fail that portion of the course if unsuccessful after three attempts.

The junior year group exams (Class II amalgam & Class III composite resin) may be completed in any order. Any individual exam (not group exams) may be challenged prior to the course in which it is scheduled as long as the prerequisites have been met. Grades on mock board sections are used to determine the Competency Exam grade component for RES 5904.

UKY: RSD 841 Nonclinical Competency for FPDs (dentoform) Clinical Competencies Class II Composite Resin & Amalgam Crown Preparation and Provisional Restoration

ULVL:	Junior Year:	2 Class II, III or IV composite resin		
		2 Class II amalgams		
		1 of the above(student's choice)		
	Senior Year:	2 Class III or IV composite resins		
		2 Class II amalgams		
		1 Class II composite resin		
		1 of the above (student's choice)		
		Mock Board Exam		

- **MMC**: Composite/Amalgam, P/M Crown on Dentoform
- **UNC**: Class II Amalgam or Posterior Composite; Class II Composite

NOVA:

RESTORATIVE DENTISTRY-CLINICAL COMPETENCY EXAMINATIONS - Class of 2006				
Year		Competency Exams		
D-3	Summer D-3	0 Exams		
2004- 2005	Fall D-3	Sim Lab - 1 exam Class II Amalgam		
	Winter D-3	Clinical - 2 exams Class II Amalgam (P&R)** Class II Composite (P&R)** Sim Lab - 1 exam Class II Amalgam (P&R)		
D-4	Summer D-4	0 Exams		
2005- 2006	Fall D-4	Board Preparation Course		
		Clinical - 2 exams		
		Class II Amalgam (P&R)**		
		Class II Composite (P&R)**		
	Winter D-4	0 Exams		
**Teeth to be restored for clinical exams (all Class II restorations) must be restored to proximal and occlusal contact.				

Clinical Exams will be done during the regular scheduled clinic hours, in your assigned zone. All prerequisites (and remediations where indicated) must be fulfilled prior to the **Clinical Exam**. The student must provide supportive documentation to the starting faculty. There is a time limit of 2 hours for **Clinical Exams**.

UPR: Junior Year: First Semester - Class I (o) Amalgam Second Semester - Class III Resin Each clinical exam represents 40% of the final grade of the course.

> Senior Year: First Semester - Class I (o) resin and Class IV Resin Second Semester - Class II Resin and Class II Amalgam Competency exams (2) (per semester) represent 80% of the course grade.

Students have the alternative to schedule the competency exam individually by making the necessary arrangements with the two assigned faculties. If not, the course coordinator will establish a date for each examination. Examiners or evaluators are faculty members that are assigned to each student at random (usually between 8 to 10 evaluators). Forty students per Class divided, half in the morning and half in the afternoon. Each student makes a case presentation to one of the evaluators and get the approval to begin with the exam. The evaluator who takes the presentation will evaluate rubber dam and cavity

preparation when the student believes they are ready and call for the evaluation (there is a limit time to do the exam), then the second evaluator evaluates and if necessary, after agreement between evaluators, advice corrections. For those students who need corrections, they will continue evaluating to finish the procedures, but the exam is considered a failure. The same protocol is used to evaluate restorations. Students who fail any competency exam are allowed to take two more exams for a passing grade of C. For those who fail to pass a competency exam, the course coordinator can assign additional clinical experiences until competency is demonstrated individually prior to a new exam. In addition, junior students **must** pass National Boards Part I to be promoted to Senior and **must** pass Part II to be able to graduate. Because the students during the senior year are assigned to a Module (as an Integral Clinic), they have to complete the total treatment (CPC) of each assigned patient. This can help them to keep practicing skills.

MUSC: Class II amalgam, Class III composite, Class IV composite (may substitute Class II composite or two-tooth diastema closure for Class IV)

VCU: Competency Examinations:

A) Caries Risk Competency:

The student must complete a treatment plan on a documented High Caries Risk patient and present the patient and treatment plan to a full-time faculty member. The students will be evaluated on their ability to appropriately assign and document patient risk factors, clinical judgment utilizing preventive therapies, and their ability to design and sequence a treatment plan properly. Three completed Treatment Plans are advisable prior to attempting this competency. If a student attempts this examination and receives a failing grade, he/she has until May 13, 2005 to retake and pass this examination or a grade of "F" will be given for the course. The original "0" will be averaged with the passing grade. Failure to complete this examination by the end of spring clinic, 5 PM, May 13, 2005, will result in a "0" being rendered for this exam.

B) Additional Competencies:

Two additional competencies will be given - one in the Fall semester and one in the Spring - the class to complete the competency that afternoon. Failure to take the exam on the assigned day will result in the student taking an oral exam and a mannequin examination on a date set by the course director. Failure of the mannequin competency might result in suspension from the GP clinic until a remediation program is completed. The course director will design the remediation program on an individual basis. Completion of remediation raises the competency grade from a 0 to a 1.

Fall Semester Junior Competency will be 12/2/04. Spring Semester Junior Competency will be 4/8/05

Competency exams are completed on mannequins with a treatment planning component. Grading is completed in a "blind" format similar to board exams with a minimum of 5 calibrated evaluators. Competency exams are worth 15% each, for a total of 30% of the final grade. Maintenance of competency is determined by faculty evaluation in daily clinic.

COMPETENCY EXAMINATIONS FOR SENIOR CLINICAL OPERATIVE 4 (50% of total grade)

1. Operative Competency (**25% of grade**):

The student must complete the preparation and restoration of 4 or more surfaces of a posterior tooth on a clinic patient. The tooth to be restored must have at least one proximal contact with an adjacent tooth and have opposing occlusal contact with a natural tooth or a tooth with a definitive restoration. The procedure may include a core build-up of a non-vital tooth, with/without pins or a prefabricated post and core. The treatment must be performed so that the resulting restoration is the most conservative to restore appropriate form and function. This procedure must be started and completed in the same clinic session and must have the approval of a full-time member of the Department of General Practice. All patient selection and grading guidelines as set forth in the section of this manual regarding D3 clinical competencies will be followed. The student will be evaluated on the following criteria:

- a. Patient selection
- b. Appropriateness of the treatment modality presented
- c. Appropriate caries removal and tooth preparation
- d. Appropriate selection of restorative material(s)
- e. Appropriate local anesthesia selection and pain management

This competency examination must be completed <u>May 1st</u> of the D-4 year. If not, a zero (0) grade will be rendered for this examination. The competency will still need to be completed at a satisfactory level (2.0 or better) and the zero will stand.

2. Mock Board Examination (25% of grade):

The Mock Board Examination will be given approximately 3 weeks prior to the respective clinical board examinations (SRTA and WREB). The exact dates for the examinations will follow the release of the clinical board examinations for that year. The examination will follow Board (SRTA, WERB, NERB) Protocol and will be given on mannequins. The purpose of this examination is to test the entry-level operative and restorative skills of the student, knowledge of the respective protocols and instructions for the clinical board exams, and to better prepare the student to manage the real clinic board examinations.

This competency exam must be taken by all D4 students at the appropriate time regardless of whether a student plans to take a clinical board examination or not.

Indicate when they are taken (specify the semester or quarter and the year- i.e. Fall, Jr.)

- **UAB**: See answer to previous question
- **UFL**: The Sophomore Summer requirement is the Caries Management Competency. For the Junior Fall through Senior Fall semesters, the students are allowed to select three competencies from the above list, with the provision that no competency can be selected more than once during a semester. The Senior Spring semester's requirement is the Caries Management and any two other competencies.

Additionally, the students are required to have completed certain competencies to graduate. These include a Class II amalgam (new or replacement) during their Junior Year, and during their Senior Year a Class II amalgam on a virgin proximal surface and another Caries Competency. Prior to graduation the students are also required to have completed the competencies for a Class II complex amalgam and Class II composite resin.

- **MCG**: This is difficult to evaluate. We assume that the continued experience obtained as they complete the treatment plans for the comprehensive care patients will maintain their competency. Any unfavorable clinical reports (clinical critiques described below) are dealt with on an individual basis and specific remediation may be required as needed.
- **UKY**: Primarily senior year, however in theory, can take in third year if ready. These are new competencies this year and as of yet unchallenged. (See next question for Timeline)
- ULVL: Junior Year: anytime after they qualify until the end of the Summer Semester Senior Year: anytime – except for the Mock Board exam which is scheduled in January of the senior year.
- **MMC**: Spring semester (February, March and April)
- **UNC**: Fourth Year
- **NOVA**: Specific dates for Group exams and any day by the end of the Semester for individual formats, blind grading for typodont exams, open grading with 2 evaluators for patient clinical competency exams
- **UPR**: See answer to previous question
- **MUSC**: Whenever the student feels ready to challenge a competency exam. Third year students must successfully complete one clinical competency exam by the end of Spring Semester, Junior Year. All competencies must be completed by the end of Fall Semester, Senior Year.
- **VCU**: See answer to previous question

Give a brief description of how they are conducted- Group or Individual format, Scheduling- specific dates for Group exams or any day by the end of the semester for individual formats, blind or open grading, how many evaluators used.

UAB: See answer to previous question

- **UFL**: The student tells a faculty member that they would like to do a competency exam and explains what tooth and which procedure. One faculty starts the student and then two faculty grade the preparation and restoration. Scheduling - specific dates for Group exams or any day by the end of the semester for individual formats, blind or open grading, how many evaluators used. Students need to complete the required competencies for each semester any day before the end of the semester
- **MCG**: See answer to previous question
- UKY: Class II Resin/Amalgam Group Dec 9 -10, 2004
 Nonclinical FPD competency Group Feb 2, 2005
 Crown Preparation & provisional restoration Individual challenge recommend completion by Nov 30, 2004, however, must be completed by March 1, 2005.
 Challenge required minimum threshold of 3 crowns on natural...
- ULVL: Individual format except for Mock Boards No specific dates as noted above Open grading except for the Mock Boards which is blind Two evaluators
- **MMC**: Group and individual Competency Examinations
- **UNC**: Group; open grading; full-time faculty only
- **NOVA**: Group if on typodont; remediation may be individual. Individual if on patient.
- **UPR**; See answer to previous question
- MUSC: Individual format scheduled anytime by the student with faculty approval
- VCU: See answer to previous question

What percentage does the competency exams counts towards a course grade?

- **UAB**: See answer to previous question
- **UFL**: Competency exams make up 50% of the student's final course grade; the other 50% comes from their clinical experience points
- MCG: See answer to previous question

UKY:	RDS 841: Class II resin and amalgam	25%
	Crown prep/provisional	25%
	Non-clinical FPD	25%

- **ULVL**: The course grade is based entirely on competency grades
- MMC: Zero% to core grade, but if successful, it does add to student points total
- **UNC**: No more than any other procedures, but students must pass each
- **NOVA**: Patient exam and Typodont exam together comprise 20% of the clinic grade
- **UPR**: See answer to previous question
- **MUSC**: Open grading with two faculty grading. Two faculty grade preparation and rubber dam application (50% of final grade); one faculty checks base if needed; same two faculty grade restoration (50% of final grade). Must have 85 or better to pass. Clinical competency grade is averaged in equally with other grades. Number of clinical competencies attempted/passed and the resultant grades are considered during faculty assessment when determining semester grade
- **VCU**: See answer to previous question

How many chances does the student get to pass the exams and how is remediation accomplished for a failed attempt.

- **UAB**: See answer to previous question
- **UFL**: If a student fails a competency they are required to complete the same competency with a passing grade by the end of the following semester
- **MCG**: See answer to previous question
- **UKY**: Remediation arranged with course director on an individual basis. Highest grade that may be achieved on a retake competency exam is 75%
- **ULVL**: The junior student can have 3 failures...the fourth failure is a failure of the course. The senior student can have 4 failures...the fifth failure is a failure of the course. Remediation is individualized based on the reason for failure. Remediation is decided by the course director with input from the evaluators. A student cannot attempt another competency until remediation is successful
- **MMC**: Two chances to pass the examination, if unsuccessful; afterwards students are assigned to faculty for remediation. This is done on a manikin.
- **UNC**: New this year, so yet to be determined

- **NOVA**: Three: If first attempt failed, gets second attempt for a maximum grade of 70. If second attempt failed, remediation consists of individualized practice for the area of deficiency (5 exercises) as determined by the faculty for a maximum passing grade of 70R. After that, student receives a failing grade and a report goes to the Student Progress Committee.
- **UPR**: See answer to previous question
- **MUSC**: Student allowed three attempts to pass an individual clinical competency exam. Remediate via additional supervised clinical work, outside work under supervision on typodont/manikin and/or extracted teeth...then re-take clinical competency exam.
- **VCU**: See answer to previous question

How do you determine if a student has maintained competency after passing each exam?

- **UAB**: See answer to previous question
- **UFL**: The students are required to perform a designated number of competencies each semester with the competency requirements becoming more challenging each semester
- **MCG**: This is difficult to evaluate. We assume that the continued experience obtained as they complete the treatment plans for their comprehensive care patients will maintain their competency. Any unfavorable clinical reports (clinical critiques described below) are dealt with on an individual basis and specific remediation may be required as needed.
- **UKY**: Monitor daily clinical activity sheets
- **ULVL**: The group managers and faculty are responsible for this. If a faculty member observes a loss of competency as demonstrated by daily clinical evaluations, the student will be required to participate in remediation as indicated by the course director
- **MMC**: The student daily grades reflect if competency is being maintained
- **UNC**: Daily evaluations
- **NOVA**: Daily grading is done. Also, Competency exams are given in all semesters of the D-3 and D-4 year, including mock board exam typodont procedures
- **UPR**: See answer to previous question

- **MUSC**: Faculty monitoring additional clinical work. Student's progress discussed and evaluated at Operative Division faculty meetings. Documented via written Competency Record, a copy of which is given to student each semester..
- VCU: See answer to previous question

II. Daily Clinic Grades: Do you conduct daily grading in the clinics?

- **UAB**: N/A for preclinical
- **UFL**: We do not currently have daily grades in the clinics.
- MCG: No
- UKY: Yes
- ULVL: No
- MMC: Yes
- UNC: Yes
- NOVA: Yes
- UPR: No response
- MUSC: Yes
- VCU: Disregarded some 9-10 years ago. Research into the efficacy showed no ability to discriminate among performers. Average grade was something like 3.1 based on a scale of 4.

What scale is used?

- **UAB**: N/A for preclinical answers
- **UFL**: The students are given experience points for the procedures they complete in the clinic. At the beginning of the semester they are given a number of points they will have to reach to get an A, B or C experience grade. This number is based on their availability to see operative patients, and is reduced for rotations
- MCG: N/A

- **UKY**: 4 Exceptionally high level of performance
 - 3 High level of performance
 - 2 Expected level of performance
 - 1 Marginal level of performance
 - 0 Unacceptable level of performance
- ULVL: N/A
- **MMC**: Scale is 0 100%
- UNC: A F
- **NOVA**: On a scale of 1 4, with 4 being the highest and 1 being the lowest
- UPR: N/A
- MUSC: 100 point scale graded in 5 point increments
- VCU: N/A

How much do daily grades count toward the final clinical course grade?

- UAB: N/A for preclinical answers UFL: The experience (daily) grade makes up 50% of their final grade MCG: N/A UKY: RSD 821 Daily Clinical Activity Evaluations – 25% RSD 831 Doesn't count but is monitored for sub-par level of performance RSD 841 Daily Clinical Activity Evaluations – 15% ULVL: None MMC: Clinic grades count 100% UNC: Nearly all NOVA: 80% - which includes both quantitative and qualitative factors UPR: N/A MUSC: 60%
- VCU: N/A

UAB:	N/A for preclinical answers
	· · · · · · · · · · · · · · · · · · ·
UFL:	No, because we do not issue daily grades
MCG:	N/A
UKY:	Yes, monitored by course director
ULVL:	No
MMC:	Yes
UNC:	Yes
NOVA:	Daily grading helps to track clinical competency
UPR:	N/A
MUSC:	Yes
VCU:	N/A

usually a useful spread in the grades?

N/A for preclinical answers

level, either clinically or professionally.

Do you use daily grading to determine maintenance of clinical competency?

Depends on the faculty member. Some are inflated (generally part-timers) and others discriminate well. Difficult to achieve faculty calibration clinically

ULVL: There can be some grade inflation although this discipline has less grade inflation than most disciplines in the school

Does the faculty adequately discriminate in their grading (grade inflation) or is there

Daily grading was discontinued due to grade inflation. Subjective evaluations take place at mid and end of course using a 1 - 4 scale with specific criteria. Clinical Critique Forms are filled out if the student performs at a substandard

MMC; Yes

UAB:

UFL:

MCG:

UKY:

N/A

UNC: Grade inflation is a problem

- **NOVA**: Some faculty are more discriminating than others in evaluating at times, so it may help balance this. Daily grading sheets are set up in an objective format.
- UPR: N/A
- **MUSC**: Grades are inflated. Useful spread observed in extreme cases (very high grade/very low grade)
- VCU: N/A

III. Experience with Indirect Resin or All-Ceramic Restorations What approximate frequency are indirect resin or all-ceramic restorations being done in your student clinics? (less than or equal to 1/month, at least 1-2/month, greater than or equal to 1/week).

- **UAB**: Preclinical indirect procedures: From 1993 to 2002, we prepared and restored one gold onlay (MODLi #14) and one resin inlay (MO #13). From 2002 to the present, we prepare these teeth for an MO resin inlay and a MODLi gold onlay, make an impression, and fabricate a working cast. To increase our time allotment for Class II resins, we decreased our time and emphasis on indirect restorations in the preclinic
- UFL: At least 1-2 per month
- **MCG**: We do approximately 3 per month All-Ceramic Veneers or All-Ceramic Crowns
- **UKY**: Rare to never
- ULVL: Maybe 5 6 a year for indirect resins
- **MMC**: All–Ceramic crowns less than on equal to 1/month
- **UNC**: Very rarely
- **NOVA**: Indirect Resin none All-ceramic restorations – 1+ per week
- **UPR**: Students are required to do at least one indirect restoration per year (inlay, onlay, laminate) in metal, resin or ceramic. Ceramic used is In-Ceram or "Noritaki", resin used is any hybrid composite (Filtex Supreme, Esthet X). Nice gingival response. Few dental insurance providers cover them.

MUSC: At least 1-2/month

VCU: Exceedingly small. Less than or equal to 1/month

What materials or systems are you using?

- **UAB**: See answer to previous question #3
- UFL: Cristobal and Empress
- MCG: Empress II
- **UKY**: About 18 months ago, purchased OPC Optimal Pressable Ceramic system. Since then head of our laboratory estimates no more than 15 units done mostly with faculty
- ULVL: Indirect resin very few done; Targis/Ivoclar Ceramics – Procera, will start to do Lava by 3M/ESPE
- MMC: No response
- **UNC**: No response
- NOVA: Procera and Empress II
- **UPR**: See answer to previous question #3
- MUSC: Empress, CEREC, Captek, Procera, Felspathic (veneers), and others
- VCU: N/A

Describe any special benefits or disadvantages that you have encountered with these restorations:

UAB: See previous answer to question 3

UFL: Benefits

- Natural esthetics
- Conservation of tooth structure
- Bonding provides reinforcement
- Bonded to enamel gives extra retention and marginal seal
- Advantage of Cristobal over Empress
- Great strength before bonding
- Easier chairside adjustment or addition of material
- Less wear of opposing dentition
- Resin cement provides properties similar to restoration

Disadvantages over a direct composite

- Exacting clinical technique preparation and cementation
- Requires two appointments
- Laboratory time and cost
- Cost

Disadvantages over amalgam

- Technique more difficult less forgiving
- Moisture control required
- Lower strength, wear resistance
- More prone to water sorption, marginal leakage, and recurrent caries

Disadvantages over crowns

- More difficult for lab to fabricate
- Temporaries less retentive
- Do not have the track record of crowns
- Disadvantages over gold inlays/onlays
- Less strength and durability
- Less of a track record
- Less biocompatible with gingival tissues
- More abrasive to opposing teeth
- Less wear resistance
- **MCG**: Significant benefits include more conservative preps for veneers and better esthetics for veneers or crowns. Disadvantages include limited applications due to undesirable patient factors compared to direct composite veneers or cast crowns
- **UKY**: Good marginal fit reported
- ULVL: Advantage: great learning experience for students Disadvantage: faculty buy-in
- MMC: See answer to previous question
- **UNC**: Requires lots of "special" materials, and closer than normal faculty supervision

- **NOVA**: Advantages: provide more esthetic treatment options to patients; provide student learning experience for preparation, restoration, and use of resin cements, under supervision
 - Disadvantages: technique sensitive; incorrect cementation (over-filling) and seating resulting in redo of restoration; laboratory problems with color match and margins (may encounter less in a smaller clinical, private practice setting); requires close faculty supervision; concerns in finding the "ideal" cement
- **UPR**: See previous answer to question 3
- **MUSC**: Benefits are mainly esthetic however, each system has its advantages and disadvantages. For example, Captek will completely mask underlying discoloration. Procera is strong and can be cemented rather than bonded, etc. Overall very good fit and esthetics but depends on lab technician. Few problems. Provides students with invaluable experience
- VCU: N/A

IV. Predictors for Success on Licensing Exams Have you found any correlation between student performance and success rates on Licensing Exams? (Class Rank, School Competency Performance, Mock Board Scores)

- **UAB**: We have not correlated preclinic performance with these areas
- UFL: A significant relationship (p<0.05) was found between passing the senior mock board fixed prosthodontic preparation and successful completion of that procedure on the state licensure exam. Second, a significant relationship (p<0.05) was noted between the clinical (patient-based) Class II amalgam on the senior mock board and passing that procedure on the state licensure exam. Third, a significant relationship was noted (p<0.05) between the number of Class IV clinical composite procedures completed during dental school and passing the licensure exam Class IV manikin composite procedure. Fourth, there was a significant relationship (p<0.01) between the number of clinical Class II amalgam procedures completed during the junior and senior years and passing the state licensure exam clinical amalgam procedure. No significance was found between the remaining five mock board procedure (Class II composites, Class IV composites, pin amalgams, endodontic, and periodontal scaling/root planning) and performance on the like procedures on the licensure exam. Likewise, no significance was found between the remaining four productivity measures (numbers of Class II composites, endodontic teeth treated, crowns and abutments completed, and quadrants of periodontal scaling/root planning) and performance of these procedures on the state licensure exam. (Taken from article by Carol M. Stewart, et.al., in the Journal of Dental Education, Volume 68, Number 4, page 426.)
- **MCG**: No apparent correlation between class rank and board success.

- **UKY**: Not surprising that poorer students have less than total success on boards the first time through. However, every year there seems to be a surprise or two where good students aren't successful. Often it's a compromise on less than ideal patient availability and selection
- **ULVL**: Mock boards have a very significant correlation
- **MMC**: In the process of putting together "hard" evidence to determine correlation between student performance and success rate on licensing examinations, have instituted a "Mock:" (SERTA) examination designed to prepare students for the actual examination. Passing this examination is a graduation requirement.
- UNC: No response
- NOVA: No response
- **UPR**: Yes, those who have problems in competency or mock board exams are the same with problems in the state board's exams.
- **MUSC**: No. Seems to depend more on patient selection than previous performance and success rate.
- VCU: Not aware of anything done in this area. However, when SRTA used a Compensatory system for grading SRTAs (average of all sections) then failures were fairly well coordinated with class rank. When SRTA switched to Conjunctive model where student has to pass each section or has to retake then that correlation disappeared. In fact, the conjunctive model resulted in failure of some of our best students.

What mechanism do you have for remediating students that fail licensing boards before graduation, after graduation?

- **UAB**: Students who failed the licensing examination before graduation are given remedial work.
- UFL: No mechanism
- **MCG**: Unsuccessful students are given a special status and must pay extra tuition after graduation in order for them to be able to use the facility and operate under out-authority
- **UKY**: Course director requires remediation on the failed portion before recommending for retake with the procedure done under faculty supervision for preparation

- **ULVL**: Nothing formal in operative before graduation...just working with group managers. For after graduation: Faculty members may work with the students. We make the simulation clinic available for remediation.
- **MMC**: Students who failed the licensing examination before graduation are given remedial work. Those students who fail after graduation are encouraged to participate in our school remediation program.
- UNC: None
- **NOVA**: After graduation, the board candidate is no longer considered a student and cannot provide any patient care in the clinics. The sim lab is made available for their use on a provisional basis. Individually, we have tutored some students. Those in post-graduate programs can remediate and take the Board later in the year. This year, the Florida Board will be given in March. Those who fail can remediate for the remainder of the year and will be allowed to retake the Board in June.
- **UPR**: Remediation is based on review given by faculty members.
- **MUSC:** Before graduation, additional supervised work on patients possibly supplemented with additional work on manikin and/or extracted teeth. After graduation, all of the above except live patients.
- **VCU**: We don't have a mechanism in place for remediating students prior to graduation.

V. Utilization of new technology in teaching Operative Dentistry.

Describe any new or innovative technologies or techniques that you use to teach either in the Pre-clinical Lab Course or the Operative Clinic Examples- Digital Cameras for immediate feedback, or to record performance on competency exams, Innovative models to demonstrate concepts, unusual teaching styles for specific procedures or for struggling students.

UAB: We have a renovated facility (Fall 2001 was our first quarter in the new preclinical facility) with a monitor at each work station. We have an ELMO projector, a Pointmaker drawing pad/graphic drawing board, a camera mounted on the ceiling, an intraoral camera and a traditional slide projector (students view the slides on their monitors) and a PC computer available at the lecture podium area for lectures and demonstrations. We have not employed any "new, innovative" teaching techniques. I have envisioned using digital cameras for immediate feedback and for recording the student's procedures on a practical exam, then using the photo on their grade sheet to show them what is correct and what is incorrect about their procedure. Ideas for implementation are needed and welcomed!!!

- **UFL**: Digital camera is used for feed back and to record performance on competency exams.
 - The Elmo set up at the main teaching unit is also a great tool for communication and immediate translation of the techniques taught.
 - Videos demonstrating most of the resin-based composite restorations and Class II amalgam preparation and restoration are greatly appreciated by the students.
 - The computer testing system allows questions on quizzes and exams to be analyzed.
- **MCG**: We use a resin cube with various preps in it to teach them discrimination using a criteria-based system of evaluation. We will bring examples of it to the meeting. We are starting to use digital cameras in the clinic and the pre-clinic lab to provide rapid feedback or examples of student work group demonstrations.
- **UKY**: RSD 821 utilizes an OSCE scenario which counts for 30% of the final grade. In clinical case presentations, Team Leaders utilize digital cameras to document student cases for review by entire class in treatment review sessions.
- **ULVL**: New materials are occasionally tried. We have purchased a small intraoral camera to record procedures and establish a portfolio for students on a pilot basis
- **MMC**; Pre-clinic computerized freshman and sophomore laboratory.
 - Allows group and individual instruction.
- **UNC**: Our entire didactic curriculum is on an electronic syllabus, and includes some nice videotaped demos of basic operative procedures.
- **NOVA**: Use of Virtual Reality Dental Simulation for pre-clinical Operative dentistry tooth preparations, ergonomics, and self-evaluation
- **UPR**: Simulation. A new camera system with monitors will be available for pre-clinical courses. A Center for Excellence was created and provides technical support to faculty and student in the preparation of digital presentations and training in the development of **Black Board** courses
- **MUSC**: Digital cameras as above; demonstration models made by faculty; CEREC 3-D system. Occasionally use an intraoral camera.

VCU: The GENP 739.01 Syllabus describes the following requirement:

 Portfolio Clinical patient treatment documentation to include: pre-, prep, and post- digital pictures with write up of description of procedure, problem list, procedure results and ways to improve ("self"-subjective evaluation) – each complete case worth 10 points. 				
Fall semester (d	completed by December 9, 2004):			
i.	Class V composite, amalgam or glass ionomer (pts: 4.5)			
ii.	Class II amalgam (pts: 2)			
iii.	Class III composite (pts: 2)			
Total points for Fall procedures (8.5) and case (30) = 38.5				
iv.	Class III composite (pts: 2)			
Total points for Fall procedures (8.5) and case (30) = 38.5				

The format for the portfolio submission is described below. It must include all of the required components. If a section (or the whole) is incomplete, it will be returned one time to the student for correction, and, if not corrected, that section will receive a "zero" due to being incomplete. The inclusion of digital photos and written responses will comprise a completed section. The written format must be given in complete sentences.

***Key Point**: Each Portfolio Submission must include a copy of a current journal article to support one portion of the treatment that was performed. A list of examples of the type topics these articles could cover include: prep design, bonding agents used, etch procedure, anesthesia, restorative materials, patient management, faculty to student interaction, chart management, informed consent, medical history issues, etc.

Grading: includes points for the completed procedure (described above) as well as a grade for the portfolio submission. Submission grades will be as follows:

Each complete case could be worth 10 points with the point value being:				
10Exceptional and Complete 8Above Average and Complete 5Average and Complete 2Below Average and Complete 0Incomplete	The grade will be based on the following: Quality of pictures, completeness of description, case selection, final result of treatment, patient management, and grammar.			

At any time in the fall semester, you may submit one 2 page, 8 referenced paper on the topics of either: "Philosophy of Practice" or "Professional Presentation".

Also, last year we instituted a program to digitally photograph a spectrum of practical exam results in the D-1 & D-2 operative preclinics. We then use these to teach from, as regards errors, pitfall, etc.

VI. Evidenced-based Practice

Give specific examples of the recent inclusion of evidenced-based dentistry into your Operative Dentistry Curriculum.

- **UAB**: In preclinic we teach the procedures and materials taught in clinic. Each is evidence based, yet not with the formality of citing references for every procedure taught in preclinic
- **UFL**: Adoption of Dentin/Pulp Biology Text, "Pulp-Dentin Biology in Restorative Dentistry", by Ivar A. Mjör
 - Inclusion of lectures in Operative Stream regarding pulpal reaction to procedures and materials
 - Practice Based Research
 - Inclusion in operative stream lectures regarding data on trends in material use (alloy vs. composite)
 - Pulpal Conservation and Treatment
 - Inclusion of lectures on indirect and direct pulp therapy with failure/success data
 - Medical Management of Caries
 - Inclusion of initiation and progression of caries. Control of etiology.
 - Integration of Biomaterials into Operative Stream.
- **MCG**: Evidenced-based principles have influenced the selection of materials and techniques in our pre-clinical and clinical curriculum for several years. Composite materials are being replaced with newer ones as the research shows better results. Curing lights and curing techniques are employed in accordance with the latest research by Dr. Rueggeberg and others. The use of bases has decreased in our clinics since the research doesn't support their widespread application. Nightguard bleaching and follow-up bonding procedures are done according to the results of research by Dr. Haywood and others.
- **UKY**: We try to incorporate new ideas and expose the students to emerging technologies particularly during the third year Advanced Esthetics Course such as Cerec 3, but often at the mercy of manufacturers to donate equipment and materials. Monitor literature for new technologies and innovations and incorporate into the curriculum as evidence supports their utilization.
- **ULVL**: Junior operative lecture series: All lectures include several references to recent articles. In the Restorative Review Class lectures are often evidence based
- **MMC**: Evidence-based practice is experienced by our students in junior and senior seminar classes. They are given clinical problems and taught to use the computer to determine those solutions that are evidenced-based.
- UNC: No response

- **NOVA**: More conservative tooth preparations
 - Repair of amalgam and composite resin restorations (vs. replacement)
 - Use of Diagnodent in caries diagnosis
- **UPR**: Case-based materials are being developing by selected faculty members in the Center for Excellence. Training of selected faculty members in standardized patient. Literature review and presentations based in clinical applications topics assigned to students (group of four or five students).
- **MUSC**: Examples: SE Bond, pressed ceramic usage, Optibond as an adhesive, and others. Essentially every material and technique that we teach must have been in practice for at least 5 years with supporting clinical and laboratory research data. New and innovative techniques and materials may be used on a very selective basis, but the standard materials and techniques used are well proven.
- **VCU**: Two things here. Our entire cariology program in the operative curriculum is science-based. All of the cariology issues of treating caries as an infection is solidly based in evidence based science. Also, the course shown below touches squarely on evidence based practice.

	GENP 745		
	CLINICAL PRINCIPLES OF RESTORATIVE DENTISTRY		
	Fall 2004		
	Dr. Carol N. Brooks		
Seminar prese	entations:		
-	Twelve groups of 7 and one group of 6 students.		
-	- 15 min. presentation.		
-	Written paper with at least one book reference and eight articles reference.		
-	Power point presentation.		
-	Turn in five potential questions to be used in the test.		
-	Peers will evaluate work done -including presentation- during seminar sessions.		

Topics for Seminars

TEAM	TOPIC	
1	Composites review – properties and applications: Not just Z100!! What other options do we have for posterior teeth? And anteriors? Indications Vs. Contraindications.	
2	Finishing and polishing composite restorations: What you need to have at hand and what needs to be done so the restoration looks natural and functions well	
3	Amalgam Review: When to use it. Tytin vs. Valiant – Amalgam usage in USA vs. Europe? Health Risks?	09/08
4	Ionomers and Resin Modified Glass Ionomers: What are they used for? Are they LC or AutoC? What are all the Fujis and numbers for? How to use?	09/08
5	Porcelain Review: What you need to know when preparing a tooth that will have a ceramic restoration vs. a gold crown? Types of ceramic crowns	10/27
6	Golden Proportions in Dentistry: Proportions and esthetics is very important! What you want to know to do the right restoration on a specific patient	10/27
7	Parapost and similar systems: Techniques, materials. When to use, most common cause of perforations?	10/27
8	Temporary RPDs (flippers): What you need to plan and know to make one. Lab script, design, materials?	10/27
9	Electrosurgery: What is it, when to use it? Perio surgery vs. electorsurg. Indication, advantages vs. disadvantages.	11/10
10	Other materials used for temporaries: Besides acrylic, how else can you make temporaries quick and effectively? Technique? Common errors and how to avoid them?	11/10
11	Ovate Pontics / immediate extractions: Esthetics in anterior segment, tissue architecture, 5 issues to evaluate during tx planning	11/10
12	Resin Cements: What can you cement with besides Rely X? Panavia, Nexus, Calibra, Compare types of cements and properties.	11/10
13	Anesthetics and Anesthetic Techniques: Types and amounts, complications, techniques/errors, POI	11/10

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