

**University of North Carolina at Chapel Hill
School of Dentistry**

**Self-Study Report
GENERAL OVERVIEW**



**Graduate School Review Site Visit
September 8-10, 2015**



TABLE OF CONTENTS

A. Program Overview.....	5
1. Program Background.....	5
2. MS Program Missions.....	6
3. Mechanisms for Assessing MS Program Missions.....	6
4. The Philosophy of the BS Dental Hygiene Program.....	6
5. Mechanisms for Assessing BS Dental Hygiene Philosophy.....	7
6. Relevance to the Mission of the Home Institution.....	7
7. Overall Program Organization.....	9
8. Need for the MS Programs.....	9
9. Demand for the MS Programs.....	10
Table 1. Number of 2015 accepted students, the ratio of applicants to a program relative to the number of accepted students, and the total number of students in each MS program.....	10
Table 2. Number of CODA programs in 2013-14, the number of CODA programs who require students to apply to PASS in 2014-15, and the percentage of applicants to PASS who apply to UNC programs.....	11
10. Interdisciplinary Activities.....	11
11. Interinstitutional Perspective.....	13
12. Previous Evaluation Synopsis.....	13
All MS Programs.....	13
Specific Program Comments.....	13
B. General Overview – Master of Science Curriculum.....	15
1. Course Review and Development.....	15
2. Course Grading.....	15
3. Core Course Sequence and Description	16
Research Core Course Sequence.....	16
Clinical Core Courses.....	16
Interdisciplinary Basic Science Courses.....	16
4. Core Course Evaluations by MS Students.....	21
Table 3. Online form used to evaluate instructor didactic instruction and courses.....	21
Table 4. Descriptive statistics for course evaluation responses for Fall 2014 and Spring 2015 Semesters.....	23

5. Requirements for MS Degree.....	23
Table 5. The MS Degree Requirements for Each Program.....	24
6. Research Project/Oral Defense/Thesis Students.....	24
Table 6. Research Development Schedule for First Year MS Students.....	24
7. Evaluation of Progress of Graduate Students during Training.....	26
Table 7. Evaluation Form Completed by Mentor.....	27
8. Learning Outcomes Assessment.....	27
C. General Faculty Overview.....	30
Table 8. Number and Demographic Characteristics of Faculty by Program with Breakdown by Rank.....	30
1. Age Distribution.....	31
2. Ethnicity/Racial Diversity.....	31
3. Salary Comparability.....	32
Table 9. School of Dentistry Quartiles for Salary by Rank for Faculty Actively Engaged in MS and BSDH Programs.....	33
4. Faculty Compensation.....	33
5. Assessment of Faculty Strengths and Areas of Concern.....	35
6. Administrative Assessment of Faculty.....	36
7. Faculty Mentoring: Policies and Practices.....	36
8. Appointment, Promotion and Tenure.....	38
9. Faculty Research.....	38
Table 10. NIDCR funding for the School of Dentistry grants between FY 2010 and FY 2014.....	39
Table 11. Annual External Funding for School of Dentistry Research.....	39
Table 12. Research Funding as Principal Investigators for Faculty Actively involved in the BSDH or MS Programs.....	40
Table 13. Research Funding as Investigators for Faculty Actively involved in the BSDH or MS Programs.....	44
10. Teaching Activities.....	45
11. Faculty Advising/Mentoring of Students.....	46
12. Graduate Teaching Assistants.....	49
Table 14. GTA Instruction Provided by MS DHED Students.....	49
Table 15. GTA Instruction Provided by MS Clinical Specialty Students.....	49
Table 16. Graduate Teaching Assistant Evaluation Form.....	50
13. Faculty Survey.....	50

Table 17. UNC-CH MS Faculty Responses to “How Satisfied are You with the Following Aspects of the ADE Program with Which You are Associated”	51
D. General MS Students Overview	52
1. Admission	52
2. Academic Environment	53
3. Student Financial Support	54
Table 18. Stipend levels per year provided to MS students	55
Table 19. Tuition Costs and Fees Per Academic Year for Full Time Students (9 to 16 credits)	55
4. Current Students	56
Table 20. Number of incoming students and total number of enrolled students in FY2015-16 for each program, and the Commission on Dental Accreditation (CODA) maximum	56
5. Race, Ethnicity, Gender, and National Diversity	56
Table 21. Number and Percentage of Students by Sex, International Status, and Ethnicity of US Residents	57
6. Current Research Protocols of MS Students	57
Table 22. Research title, mentor and committee members of students who graduated in 2015 and those scheduled to graduate in 2016 and 2017	57
7. Current Student Feedback	62
Table 23. “Importance of Items in Choosing Your Program at UNC”	62
Table 24. “How Satisfied are You with the Following Aspects of Your Program”	63
8. Alumni	65
Table 25. Degrees Awarded between FY 2010-11 and FY 2014-15	65
9. Professional and Intellectual Contributions by MS Students	65
10. The Derek Turner Awards	66
Table 26. MS Turner Award Winners	66
11. Graduate Alumni Survey Results	68
Table 27. Demographic characteristics of Alumni who graduated between 2005 and 2014	68
12. Clinical Specialty Alumni	68
Table 28. “How Satisfied are You with the Following Aspects of Your Program”	69
13. DHED Alumni	70
E. Leadership and Support	71
1. Leadership – School of Dentistry	71
2. Administrative Support	73
3. Technical Support	73

4. Facilities.....	74
5. Library Holdings.....	75
F. The Future.....	76
1. Program Size.....	76
2. Student Resources.....	76
3. Curricular Activities.....	76
4. Quality Improvement of Graduate Education.....	77
5. Student Qualifications.....	77
6. Racial, Ethnic, and Gender Diversity in the Graduate Program.....	77
7. Quality of Mentoring.....	77

The School of Dentistry Graduate School Program Review

GENERAL OVERVIEW

The OVERVIEW document contains information that is common to the Bachelor of Science in Dental Hygiene and all of the MS programs. Program-specific self-studies follow the OVERVIEW. The Bachelor of Science in Dental Hygiene program follows the policies and processes of the General College of the University of North Carolina. The Master of Science programs follow the policies and processes of the Graduate School of the University of North Carolina. All programs follow the policies and processes of the School of Dentistry

A. PROGRAM OVERVIEW

1. Program Background

The UNC School of Dentistry (SOD) includes the Bachelor of Science in Dental Hygiene and the following educational degree opportunities at the MS levels: Dental Hygiene Education, and eight clinical specialties: Endodontics, Operative Dentistry, Oral & Maxillofacial Pathology, Oral & Maxillofacial Radiology, Orthodontics, Pediatric Dentistry, Periodontology, and Prosthodontics. Other programs offered in the School of Dentistry include a certificate program in Dental Assisting and certificate programs in the clinical specialties of Advanced Education in General Dentistry (1 year), General Practice Residency (1 year with an optional 2nd year), Orofacial Pain (2 years), and Oral and Maxillofacial Surgery (6 years with MD).

The clinical specialty practice programs – Endodontics, Operative Dentistry, Oral and Maxillofacial Pathology, Oral and Maxillofacial Radiology, Orthodontics, Pediatric Dentistry, Periodontology and Prosthodontics – are dual-specialty certificate and UNC-Chapel Hill Graduate School programs. The majority of students receive a Master of Science Degree, with others receiving a Master in Public Health or a PhD in Oral Biology. The minimum requirements for the certificate are prescribed by the American Dental Association's Commission on Dental Accreditation (CODA) and the respective specialty boards for the approved CODA specialties. Masters degrees are conferred by the Graduate School.

Students in a Graduate School program must satisfactorily complete all of the following requirements: (1) academic, (2) clinical, (3) teaching assistantship, (4) comprehensive examination(s), and (5) Graduate School thesis/dissertation requirements. All of these requirements must be successfully completed in order to receive an MS in Dental Hygiene Education and to receive the clinical certificate and MS degree from one of the eight clinical specialty Programs.

Enrollment for study in the eight clinical specialty programs requires approximately three years of residency. The curricula have been designed to permit maximum flexibility in preparation for practice, teaching and/or research, as well as to meet the educational requirements of the specialty boards. The MS in Dental Hygiene Education spans 21 months and is designed to prepare dental hygienists for teaching, research or corporate employment. The BS in Dental Hygiene provides a pre-professional curriculum, spans two years, and is designed to prepare dental hygienists for clinical practice, future education, or research.

2. MS Program Missions

The **primary missions** of the MS programs are to prepare individuals for careers in clinical practice, education, or industry; to provide the background for these individuals to function as contributors to research and scholarly activity; and to provide the expertise necessary for these individuals to become leaders in their designated specialty. These missions are consistent with the mission of the University of North Carolina at Chapel Hill and the UNC-SOD.

3. Mechanisms for Assessing MS Program Missions

Three primary mechanisms are used to assess whether the overall missions of the MS programs are being met:

- The Advanced Education Program Directors (ADE PD) Committee meets monthly to evaluate the progress of students and the appropriateness of programmatic courses and activities and makes recommendations for curriculum changes based on course feedback from students and faculty. The ADE PD committee consists of all advanced education program directors, an ADE student representative from each of the 1st, 2nd, and 3rd year classes, the Associate Dean for Education, and the Associate Dean for Clinical Affairs. The committee is chaired by the Assistant Dean for Advanced Education & Graduate Programs.
- Objective data are continuously gathered about our graduate students and the faculty regarding their honors, publications, other accomplishments, and graduation placement.
- In preparation for this self-study, the three program constituencies (students, alumni, faculty) were invited to complete subjective surveys asking how well the programs are currently performing their educational mission and solicited suggestions for future improvements.

4. The Philosophy of the BS Dental Hygiene Program

The philosophy of the dental hygiene program is to empower students to grow into lifelong learners who are competent in providing patient care to a diverse population in traditional and non-traditional settings. Our aim is to inspire students to become critical thinkers who utilize evidence-based decision-making within the scope of dental hygiene practice. In addition,

baccalaureate graduates complete educational requirements that provide a liberal arts foundation while also attaining expanded knowledge and skills in dental hygiene practice.

5. Mechanisms for Assessing BS Dental Hygiene Philosophy

- Bimonthly faculty meeting
- Yearly faculty retreat
- Dental Hygiene Teaching Committee curriculum review

6. Relevance to the Mission of the Home Institution

The University of North Carolina School of Dentistry (SOD)

The School of Dentistry mission states:

The School of Dentistry's Vision and Mission Statements have been developed by the general faculty and the student body. These statements are appropriate to dental education and address teaching, patient care, research, and service. (*The mission statement was last reviewed and approved by the faculty March 2006.*)

Vision: The vision of the School of Dentistry is to be a world leader in improving oral health through excellence in education, patient care, research, public service and engagement.

Mission: The mission of the School of Dentistry is to promote the health of the people of North Carolina, the nation and the world through excellence in teaching, patient care, research and service.

Education: The School of Dentistry is committed to conduct high quality dental education programs at the undergraduate, graduate, doctoral, and postdoctoral levels. The School's academic environment fosters the acquisition of knowledge in the basic, behavioral, and clinical sciences. Independent thinking and life-long learning are encouraged through degree-granting and continuing education programs. A high standard of professional and personal ethics, as well as technical excellence, are integral to the learning experience. The School prepares its graduates to enter the general practice of dentistry, the dental specialties, dental allied health fields, research, and teaching in a wide variety of settings, primarily in service to the people of North Carolina.

Research: The School of Dentistry's faculty and students generate new knowledge in the basic, applied, and clinical sciences, with an emphasis on the promotion of oral health and function. Research also is conducted in the areas of health services, health policy, and health education. New knowledge is disseminated through presentations at scientific forums and publication in the scholarly literature. School of Dentistry scientists interact and collaborate

with other investigators on this campus, as well as with leading scientists elsewhere in the United States and abroad.

Patient Care: The School of Dentistry provides high quality comprehensive, primary and specialized oral health care to individuals of all socioeconomic and cultural groups from North Carolina and the region. Patient care enhances the educational programs and supports the scientific and clinical research efforts of the School.

Service: The School of Dentistry provides continuing education programs for dental and other health professionals in a variety of settings. The School provides consultation services to practitioners and policy makers, and seeks to inform the public about the prevention and treatment of oral diseases. Faculty and staff serve in leadership roles in the University, community, public agencies, and professional organizations. The School supports the activities of the University and dental alumni associations, the Dental Foundation of North Carolina, and an informal organization of dental parents.

The University of North Carolina at Chapel Hill

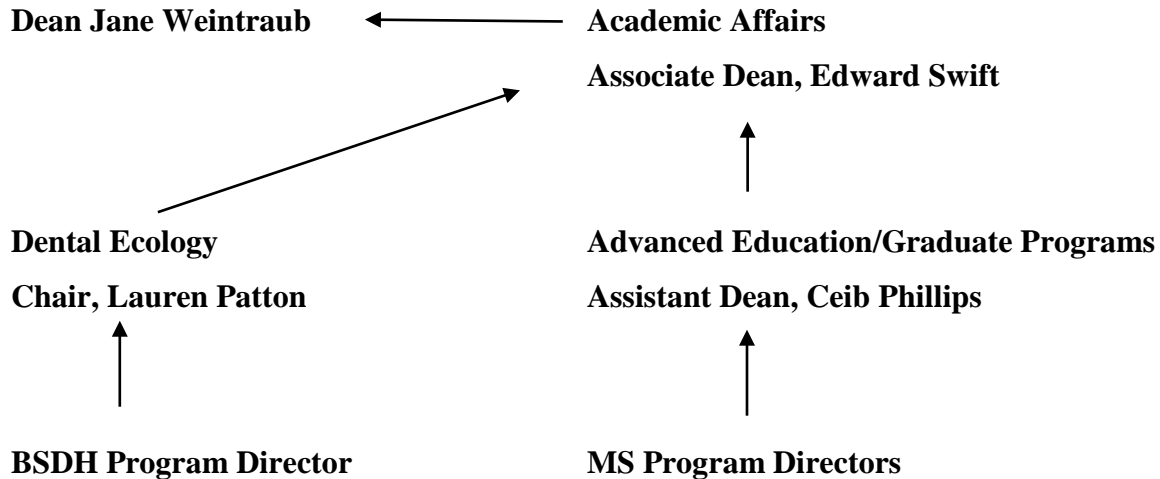
The mission statement of the University of North Carolina at Chapel Hill states:

“The University of North Carolina at Chapel Hill, the nation’s first public university, serves North Carolina, the United States, and the world through teaching, research, and public service. We embrace an unwavering commitment to excellence as one of the world’s great research universities. Our mission is to serve as a center for research, scholarship, and creativity and to teach a diverse community of undergraduate, graduate, and professional students to become the next generation of leaders. Through the efforts of our exceptional faculty and staff, and with generous support from North Carolina’s citizens, we invest our knowledge and resources to enhance access to learning and to foster the success and prosperity of each rising generation. We also extend knowledge-based services and other resources of the University to the citizens of North Carolina and their institutions to enhance the quality of life for all people in the State.”

In line with the mission statements of the SOD and UNC-CH, the faculty and students treat patients with diverse oral health needs and generate new knowledge in the basic, translational, and clinical sciences, with an emphasis on the promotion of oral health and function. The programs provide a strong educational and research foundation for students and generate discoveries that lead to advances in patient care and oral health. The BS and MS programs are an integral part of the SOD and University’s teaching, research, and service commitment to oral health care. New knowledge generated by the SOD faculty and students is disseminated through presentations at scientific forums and scholarly publications.

7. Overall Program Organization

An overview of the organization of the MS and BSDH programs is provided below:



8. Need for the MS Programs

According to the U.S. News and World Report (copyright 2015 © U.S. News & World Report LP.), dentist was ranked 1st and dental hygiene 4th as Best Health Care Jobs and 1st and 5th respectively as the 100 best jobs. Although many of the dental concerns of children and adults can be addressed by general dentists, the oral health needs of many individuals require specialty care. The reasons given in the U.S. News and World Report for selecting “dentist” as top choice for best health care job apply equally to dental specialists: salary, work-life balance, and job satisfaction.

As noted by the CDC (http://www.cdc.gov/oralhealth/children_adults/adults.htm), “There are threats to oral health across the lifespan. Nearly one-third of all adults in the United States have untreated tooth decay. One in seven adults aged 35 to 44 years has gum disease; this increases to one in every four adults aged 65 years and older. In addition, nearly a quarter of all adults have experienced some facial pain in the past six months. Oral cancers are most common in older adults, particularly those over 55 years who smoke and are heavy drinkers.” For children (http://www.cdc.gov/oralhealth/children_adults/child.htm), “About 1 of 5 (20%) children aged 5 to 11 years have at least one untreated decayed tooth; 1 of 7 (13%) adolescents aged 12 to 19 years have at least one untreated decayed tooth. The percentage of children and adolescents aged 5 to 19 years with untreated tooth decay is twice as high for those from low-income families (25%) compared with children from higher-income households (11%).”

In North Carolina in FY2012-13, 41.9% of 3rd graders had treated or untreated tooth decay with 14.3% experiencing untreated tooth decay (2012-13 State Oral Health Survey). In 2010, approximately one-third of NC adults 18 or older had not visited a dentist or dental clinic in the past year (Behavioral Risk Factor Surveillance System (BRFSS), 2010). Twenty-one and a half percent of NC adults aged 65+ had lost all of their natural teeth due to tooth decay or gum disease compared to 16.4% nationally (2010 BRFSS) and 48 percent of NC Adults aged 65+ have lost six or more teeth due to tooth decay or gum disease compared to 40.4% nationally (2010 BRFSS).

9. Demand for the MS Programs

The demand for admittance to the MS programs at UNC is high, as illustrated in Table 1. Only highly qualified applicants are admitted even if a program is approved for a higher number of acceptances. This year, Operative Dentistry and OMF Radiology accepted only one student although the approved numbers are three and two, respectively.

Table 1. Number of 2015 accepted students, the ratio of applicants to a program relative to the number of accepted students, and the total number of students in each MS program

	# of Incoming Students	Ratio Applicants: Incoming	Total # of Students
Dental Hygiene Education	3	2:1	6
Endodontics	3	22:1	9
Operative Dentistry	1	21:1	7*
Oral & Maxillofacial Pathology	1	8:1	3
Oral & Maxillofacial Radiology	1	13:1	5*
Orthodontics	6	37:1	18
Pediatric Dentistry	3	28:1	11**
Periodontics	3	31:1	10
Prosthodontics	3	32:1	9***

*Operative Dentistry is approved for a total of 9 and Oral Radiology for a total of 6 students

**Pediatric Dentistry – 2 students are concurrently in PhD programs: 1 in MPH and 1 certificate-only

***Prosthodontics – 1 student concurrently in PhD program

The number of CODA-accredited programs across the US in 2013-14 is given in Table 2. CODA accredited programs differ in graduation status (certificate only, certificate with optional MS degree, certificate with required MS degree), and programs differ in location (dental school vs. non-dental school), length of program, and cost. Cost of a program is difficult to determine because it depends on tuition, fees, stipend level, and availability of tuition remission, and these aspects are not transparent across institutions.

All of the MS programs except Dental Hygiene Education, Oral & Maxillofacial Pathology, Oral & Maxillofacial Radiology, and Operative Dentistry require applicants to apply through the PASS (Post-doctoral Application Support System). As indicated in Table 2, not all programs across the country use PASS but rather rely on direct application to the institution. Another measure of the demand for each program is the percentage of the total number of applicants to PASS who apply to UNC (Table 2). Approximately one-third of all applicants to PASS apply to the orthodontic, periodontology, and prosthodontic programs even though there are a substantial number of programs available in the US to which they could apply (Table 2). The percentage of applicants through PASS to the Pediatric Dentistry program is quite small compared to the other UNC PASS programs. However, the vast majority of Pediatric Dentistry programs throughout the country have stipends through GME funding. GME stipend levels are substantially higher than those offered at UNC. In addition, because the UNC Pediatric Dentistry program is a graduate school program and students receive no tuition remission, students are charged full tuition and fees while other pediatric programs do not charge tuition or have full tuition remission. Two of the programs, Orthodontics and Pediatric Dentistry, also require applicants to apply to the National Matching Services (MATCH).

Table 2. Number of CODA programs in 2013-14, the number of CODA programs who require students to apply to PASS in 2014-15, and the percentage of applicants to PASS who apply to UNC programs

Program	2013-14	2014-15	2011	2012	2013	2014
	# of CODA Programs	PASS # of PASS Institutions	Applicants % of PASS Applicants	Applicants % of PASS Applicants	Applicants % of PASS Applicants	Applicants % of PASS Applicants
Endodontics	56	37	25	18	17	21
Orthodontics	66	56	30	29	28	30
Pediatric Dentistry	76	80	8	8	11	10
Periodontics	55	31	29	45	41	37
Prosthodontics	47	33	31	41	32	34
			2012 Start	2013 start	2014 start	2015 start

Although three of the clinical specialty programs do not currently participate in PASS, five Operative Dentistry, three Oral & Maxillofacial Pathology, and two Oral & Maxillofacial Radiology programs across the US do participate in PASS.

10. Interdisciplinary Activities

A significant strength of the BS and MS programs in the SOD is the extensive inter-program activity that occurs in the didactic, seminar, and clinical activities. The breadth of clinical programs in a single complex with such a rich and diverse clinical and research environment

including the availability of additional approved CODA specialties including Oral and Maxillofacial Surgery (a dual-certificate and MD program) and Orofacial Pain (a certificate-only program) within a single institution. The proximity of programs (clinics) within the Dental School complex provides students opportunities for joint patient treatment planning and care as well as attendance at joint seminars (see Overview Curriculum: Multi-Use Courses); basic science and research core courses (see Overview Curriculum Multi-Use Courses), in which basic science, School of Pharmacy, School of Medicine, and SOD faculty researchers participate; and continuing education courses.

The proximity of all Health Affairs departments is another advantage for the promotion of interdisciplinary and inter-professional activities. UNC Memorial Hospital and the School of Medicine are within 100 yards of the SOD and the School of Public Health is directly across the street. Students and faculty have access to and are drawn from the Health Affairs Campus at the University of North Carolina at Chapel Hill which, in addition to Medicine and Public Health, contains the Schools of Nursing and Pharmacy. Students from multiple programs (Endodontics, OMF Pathology, OMF Radiology, and Pediatric Dentistry) rotate through hospital rotations and/or participate in operating room experiences with opportunities to interact with medical staff. In addition, students from Periodontics and Endodontics rotate through the Durham Veterans Administration Hospital, which provides occasions for interacting with medical staff.

In addition to academic interdisciplinary activities, all MS students are required to prepare and submit a thesis to the Graduate School. Students are strongly encouraged to reach beyond the SOD for mentors and committee members (see Overview Students – Current Research Projects). They have the opportunity to participate in research seminars, such as the weekly Oral Biology Seminar series, in which external (outside the SOD and UNC) translational research speakers are invited to present, and the annual Dental Research in Review day. Since 2003, new collaboration and interdisciplinary opportunities have become available to faculty and students with the establishment of

- the General and Oral Health Center (GO Health)
<https://www.dentistry.unc.edu/research/centers/gohealth/>
- the Center for Pain Research and Innovation
<https://www.dentistry.unc.edu/research/centers/cpri/>
- the UNC TRaCS Institute, <http://tracs.unc.edu/>

BS Dental Hygiene and MS students are also encouraged to participate in community service that provides an important interdisciplinary aspect. The three primary community service projects that students participate in are Mission of Mercy (<http://www.ncmom.info/>) clinics, Student Health Action Coalition (<https://www.med.unc.edu/shac/clinical-services/Dental-SHAC>) clinics that include SHAC Social Work representatives, and the Give Kids A Smile

project (<http://www.ncdental.org/for-the-public/free-and-low-cost-dental-care/gkas>), which in 2015 included volunteers from the SOD, UNC School of Medicine, the UNC School of Nursing, the Eshelman School of Pharmacy, the Gillings School of Global Public Health, and members of the UNC volleyball, football, and soccer teams.

11. Interinstitutional Perspective

Direct comparison of the quality of the UNC programs to the quality of other programs requires outcome measures from those programs that are not readily available. However, there are indirect outcome measures that indicate that the UNC programs compares favorably with other programs. These include board completion rates, quality of publications by students, and national awards earned by students.

There are several unique aspects to the UNC School of Dentistry that attract students: 1) Quality and number of faculty, 2) UNC School of Dentistry and UNC campus environment, 3) Curriculum that focuses on the integration of clinical care, critical appraisal, and original research, 4) Interdisciplinary activities and close ties with the UNC Schools of Public Health and Medicine, 5) Diverse research areas and availability of mentors, and 6) High-achieving students who garner national and international awards.

12. Previous Evaluation Synopsis

The BS Dental Hygiene and all MS programs, except for the non-CODA programs Dental Hygiene Education and Operative Dentistry, were reviewed by the Commission on Dental Education in 2010 and have A1 status, Approval without Reporting Requirements.

On August 17, 2010 then Chancellor Dr. H. Holden Thorp received a letter from the Commission on Dental Accreditation (CODA) stating:

“At its August 5, 2010 meeting, the Commission on Dental Accreditation (CODA) considered the site visit report on the dental education program, the allied education programs in dental hygiene and dental assisting, the advanced education program in general practice residency, the advanced education in general dentistry program and the advanced specialty education programs in oral and maxillofacial pathology, oral and maxillofacial radiology, orthodontics and dentofacial orthopedics, pediatric dentistry, periodontics and prosthodontics sponsored by the University of North Carolina.

“On the basis of this review, the Commission adopted a resolution to grant the dental education program, the allied education programs in dental hygiene and dental assisting, the advanced education program in general practice residency, the advanced education in general dentistry program and the advanced specialty education programs in oral and maxillofacial pathology, oral and maxillofacial radiology, orthodontics and dentofacial orthopedics, pediatric dentistry, periodontics and prosthodontics the accreditation status of ‘approval without reporting requirements.’ No additional

information is requested from these programs at this time. The next site visit for the programs is scheduled for 2017.”

The BS Dental Hygiene program was not included in the Graduate School review in December 2003. The Oral and Maxillofacial Pathology program was only initiated in 2004 and was not included in the 2003 review.

The results of the December 2003 review of the existing MS programs in 2003, our response to the review which included the PhD Curriculum in Oral Biology program, and our recent (2010) mid-term report regarding changes in our programs are provided in Appendices 1, 2 and 3 respectively. The PhD Curriculum in Oral Biology was reviewed separately in September 2012.

The major considerations raised in the 2003 CODA review regarding the MS programs and the current status are as follows:

All MS Programs

1. Inconsistency in the utilization of “multipurpose core courses.”

There has been little change in the utilization of the basic science core courses since the last review (see Overview Curriculum – Core Courses). After discussions at the Advanced Education Directors’ meetings and with the Assistant Dean for Advanced Education, it was concluded that the program director and program faculty are individually responsible for decisions on curriculum that best meet the needs of the program after considering the course content, CODA requirements, and course scheduling. The Core Courses were reviewed at the Advanced Education Directors’ annual retreat in December 2014 and changes in content, program involvement, and timing are planned for implementation in FY 2015-16

2. Publication of MS student research. Developing clearer expectations for students re preparation of publishable articles as part of the thesis requirement would be desirable.

All students (research mentors) are encouraged to develop and implement a research project that can be published but publication of a manuscript is not a requirement for the MS degree. To assist in the process, all MS programs now follow the thesis formats described at <https://www.dentistry.unc.edu/resources/policies/academic/>, which include formats of one or two publishable (published) manuscripts. The thesis formats are provided in the Overview: Curriculum section.

3. Lack of a database on the post-graduation record.

Improvements in tracking graduates have occurred. See Overview: Students section.

Specific Program Comments

1. *OMF Radiology: Low application numbers for program.*

The application numbers continue to be low but the placement of graduates in faculty positions has improved significantly in the past five years. Including Radiology in the PASS program is being considered as a way to enhance the visibility of the program.

2. *Orthodontics, Periodontics, and Prosthodontics: Low publication rate of graduates.*

The publication rate has improved for these programs.

B. GENERAL OVERVIEW – MASTER OF SCIENCE CURRICULUM

(The BS in Dental Hygiene Curriculum is described in the Dental Hygiene Program Specific Self-Study.)

The time commitment of students within the Graduate Programs in Dentistry is intensive. Students attend classes and clinics year-round. In addition, students are scheduled for graduate teaching assignments and off-site rotations and must complete research requirements that meet the Graduate School standards. Accordingly, program activities are highly structured.

1. Course Review and Development

Course review is an important part of the curriculum development and quality control. Each course is reviewed and updated annually by the course director. In addition, feedback on student achievement through program-specific comprehensive examinations, board certification exams, and course evaluations by students is incorporated in curriculum development. New information and developments are constantly being added to the course syllabi and incorporated into lectures. In addition, timely and important publications are reviewed in seminars to ensure that cutting edge discoveries and developments in our respective fields are reviewed. New areas for course development are also discussed by the Advanced Dental Education Program Directors (ADE PG) Committee. When a need for a new course is determined, the ADE PG then identifies a course director, who develops a syllabus and overall goals and objectives for the course. This information is then reviewed by the ADE PG before the course is submitted to the Graduate School for approval.

2. Course Grading

The following graduate permanent grades are given:

H	High Pass - Clear Excellence
P	Pass - Entirely Satisfactory Graduate Work
L	Low Pass - Inadequate Graduate Work
F	Fail

A student becomes academically ineligible to continue in the Graduate School if he or she receives a grade of F, nine or more hours of L, or if he or she fails a written or oral examination for the second time. A detailed description of [eligibility](#) and [graduate grading](#) can be found in the [Graduate Handbook](#).

3. Core Course Sequence and Description

This section describes the research, clinical, and basic science core courses for MS students. For each course, the MS programs that participate, the course director, and the number of enrolled students in the Fall 2014 and Spring 2015 semesters are provided. The course directors for the core courses have been stable over the past five years and the number of enrolled students per course varies only slightly from year to year since the number of students in each year of each program is very stable. All students must meet the MS requirements of the UNC Graduate School as well as the program specific requirements (see Program Specific sections). Course syllabi are available on-site.

Research Core Course Sequence

All specialty practice program students, unless exempted by previous coursework or enrollment in School of Public Health alternatives, are registered for a three-semester research sequence.

DENG 701: INTRODUCTION TO RESEARCH DESIGN

(1 credit) Fall Semester First Year

Course Director: Tim Wright

Enrolled Programs: DHED, ENDO, OBIO, OPER, ORAD, ORPA, ORTH, PEDO, PERI, PROS

of Enrolled Students: 28

Introduction to scientific methodology, clinical epidemiology, technology transfer, clinical trials, evaluation of scientific literature, animal models for oral research, ethnics in research, laboratory simulations, and research models.

DENG 702: INTRODUCTORY BIostatISTICS

(2 credits) Spring Semester First Year

Course Director: Ceib Phillips

Enrolled Programs: DHED, ENDO, OBIO, OPER, ORAD, ORPA, ORTH, PEDO, PERI, PROS

of Enrolled Students: 29

Introduction to biostatistical concepts, sampling, descriptive statistics, hypothesis testing, comparisons of means and proportions, 2x2 and r x c tables, correlation and simple regression, sample size and power.

DENG 703: APPLIED RESEARCH METHODOLOGIES

(2 credits) Fall Semester Second Year

Course Director: Anne Sanders

Enrolled Programs: DHED, ENDO, OPER, ORAD, ORPA, ORTH, ORAD, PEDO, PERI, PROS

of Enrolled Students: 24

This semester focuses on providing opportunities to work with the data the student will collect or has collected for his/her project. Students will create mock tables and figures for the analysis of their thesis data. SPSS will be used to create tables. SPSS will be used to analyze and to present findings, including shells for tables and figures that can be used as a model for the thesis.

Clinical Core Courses

ORPA 762: ORAL PATHOLOGY & HISTOPATHOLOGY

(2 credits) Fall Semester First Year

Course Director: Alice Curran

Enrolled Programs: ENDO, OPER, PERI, PROS

of Enrolled Students: 11

This series of clinicopathologic correlation conferences is designed to provide postdoctoral students with current information in oral and maxillofacial pathology, an opportunity to develop skills in clinical differential diagnosis, and to develop a broader understanding of disease processes through histopathologic evaluation. Emphasis is on class participation and the development of a working differential diagnosis, discussion of management of oral lesions and correlation of clinical findings with histopathologic features. The discussions prepare the specialist to diagnose and manage oral lesions that are commonly encountered in dental specialty practice. Development of a working relationship between the oral pathologist and the specialist also is emphasized.

PERI 820: INTRODUCTION TO IMPLANTS

(1 credit) Fall Semester First Year

Course Director: Thiago Morelli

Enrolled Programs: OMSU (Audit), PERI, PROS, OPER

of Enrolled Students: 9

This introductory course in dental implant therapy is designed to complement previous predoctoral exposure to implant treatment. It consists of a series of lectures supported by projected material presented by faculty in departments of Prosthodontics, Periodontology, Oral Surgery and Radiology. There are assignments of multiple journal articles weekly to support the lecture topics. Laboratories are scheduled to allow demonstration of both surgical and restorative procedures using the brand systems available at UNC. Students are encouraged to attend continuing education courses on implant therapy presented during the semester.

OPER 736: DENTAL MATERIALS

(1 credit) Fall Semester First Year & Spring Semester First Year

Course Director: Terry Donovan

Enrolled Programs: OPER, PROS

of Enrolled Students: 6

The course consists of a series of lectures, seminars, literature reviews, and student presentations on topics related to dental materials and restorative dentistry.

Course Objectives:

1. To develop a basic understanding of the nature of the materials used in restorative dentistry.
2. To understand the critical manipulative variables essential for success with the various groups of dental materials.
3. To become familiar with the classic literature in the field of dental materials.
4. To gain insight into research methodology in order to be able to critically evaluate new products and research related to those products.

DENG 704: INTERDISCIPLINARY CARE CONFERENCE

(1 credit) Fall Semester First Year, Spring Semester First Year, Fall Semester Second Year, & Spring Semester Second Year

Course Director: Rotates

Enrolled Programs: ENDO, OPER, ORAD, ORTH, PERI, PROS

of Enrolled Students: 15

The course is based on clinical case presentations by residents from each of the participating Advanced Dental Education Programs. Cases suitable for presentations may include:

- Diagnosis and treatment planning cases (initial stages)
- Cases in progress (active treatment)
- Completed cases

Presentations are computer-based and single projection in order to be suitable to the room used (Koury G405). Presenters work with their program director and department faculty in the selection and preparation of their specialty's presentation. The presentations must not contain any PHI and maintain HIPAA compliance. Each program director must approve the presentation prior to the corresponding session.

DENG 751: ADVANCED PAIN AND ANXIETY CONTROL

(2 credits) Spring Semester First Year

Course Director: Mike Roberts

Enrolled Programs: PEDO, PERI

of Enrolled Students: 6

The purpose of this course is to prepare the pediatric dentistry and periodontics graduate students for their clinical rotation in the hospital on the anesthesia service. The course covers a wide range of subjects important to assessing a patient before administering general anesthesia and to manage the patient once under general anesthesia.

ORPA 763: ORAL PATHOLOGY & HISTOPATHOLOGY

(2 credits) Spring Semester First Year & Spring Semester Second Year (PROS)

Course Director: Alice Curran

Enrolled Programs: ENDO, ORAD, PERI, PROS

of Enrolled Students: 11

This continuing series of clinicopathologic correlation conferences is designed to further develop concepts presented in ORPA 762 with additional opportunities for the students to refine skills in clinical differential diagnosis, and to develop a broader understanding of disease

processes through histopathologic evaluation. Emphasis is on class participation and the development of a more comprehensive working differential diagnosis, discussion of management of oral lesions and correlation of clinical findings with histopathologic features. The discussions prepare the specialist to diagnose and manage more complex oral lesions that are encountered in specialty practice. A working relationship between the oral pathologist and the specialist also is further developed.

PERI 821: CLINICAL IMPLANTOLOGY

(1 credit) Spring Semester First Year

Course Director: Thiago Morelli

Enrolled Programs: OMSU (Audit), PERI, PROS

of Enrolled Students: 11

This seminar series offers an informal opportunity for restorative dentists and surgeons to present cases and stimulate discussions related to implant dentistry. Diverse aspects of implant therapy are discussed and presented, including but not limited to case selection/patient assessment, diagnosis, treatment planning, pre-implant surgery, implant surgery, post-op care, temporization, restoration, maintenance, and surgical and prosthetic complications. The seminar structure consists of case presentations and discussion.

ORAD 706: ADVANCED ORAL RADIOLOGY

(2 credit) Spring Semester First Year

Course Director: André Mol

Enrolled Programs: ENDO, OPER, ORAD, ORTH, PERI, PROS

of Enrolled Students: 23

This course is designed to provide postdoctoral students with information on advanced oral and maxillofacial imaging modalities. The topics include material designed to prepare the student in the radiologic management of patients with complex diagnostic problems. A substantial portion of the course will focus on cone beam computed tomography (CBCT), including specialized hands-on sessions using CBCT software. The other portion of the course will consist of more traditional aspects of maxillofacial imaging such as quality assurance, radiation protection and equipment selection. One session will be devoted to the technology and application of magnetic resonance imaging (MRI) in the diagnosis of oral and maxillofacial disease. The presentations on CBCT will provide the students with advanced information on the technology, dosimetry and applications of CBCT in dentistry. Two sessions will be devoted to CBCT image interpretation to enhance the recognition of normal anatomy and pathologic findings.

Interdisciplinary Basic Science Courses

DENG 707: REGIONAL ANATOMY

(3 credits) Summer Semester First Year

Course Director: Edward Kernick

Enrolled Programs: OMSU (Audit), ENDO, OPER, ORAD, PERI, PROS

of Enrolled Students: 14

Review of the anatomy of the head and neck region, including osteology, cardiovascular system, head and neck embryology, special sensory modalities, nervous system, functional nervous system, and extraoral correlation with the oral cavity.

OBIO 720: TOPICS IN ORAL BIOLOGY

(1 credit) Summer Semester First Year

Course Director: Sylvana Barros

Enrolled Programs: ENDO, ORAD, PERI, PROS

of Enrolled Students: 12

Individually, the faculty provide insights regarding some of the general principles affecting the practice of dentistry. The faculty shares their current scientific approaches to problem solving in dentistry, and highlights their own research interests to engage the new residents to current and ongoing research around the world as well as in their own laboratories/clinics.

DENG 720: APPLIED PHARMACOLOGY

(1 credit) Summer Semester First Year

Course Director: Kathleen Rao

Enrolled Programs: ENDO, OPER, PERI, PROS

of Enrolled Students: 11 (Required of all non-CODA accredited program graduates)

This course is designed for dental practitioners with sufficient general and specific clinical pharmacology knowledge to appropriately and safely utilize drugs in treatment. The course will be concentrated in three areas: general clinical pharmacology principles, general clinical pharmacology of medications, specific clinical pharmacology of drugs utilized by dental practitioners.

OBIO 721: EXTRACELLULAR MATRICES

(1 credit) Fall Semester First Year

Course Director: Eric Everett

Enrolled Programs: ENDO, OPER, ORPA, PERI, PROS

of Enrolled Students: 10

This course focuses on the roles of extracellular matrices during normal development and disease and mechanisms of ECM during cellular and tissue growth and development, and processes associated with the structures and molecules which comprise craniofacial and related tissues.

OBIO 722: HOST PATHOGEN INTERACTIONS

(1 credit) Fall Semester First Year

Course Director: Ronald Arnold

Enrolled Programs: ENDO, OPER, ORPA, PERI, PROS

of Enrolled Students: 10

Overview of structures and biological functions associated with the oral cavity and their influence on the oral ecology. Basic principles of infection, immunity, host response, and inflammation and the application of these concepts to diseases and disorders associated with the oral and craniofacial region.

OBIO 723: ORALFACIAL NEUROSCIENCE

(1 credit) Spring Semester First Year

Course Director: Andrea Nackley

Enrolled Programs: ENDO, PERI, PROS

of Enrolled Students: 10

This course focuses on the mechanisms involved in the development, maintenance, and treatment of pain.

Course Objectives:

1. To provide advance level understanding of the underlying biological processes that contribute to the transmission and modulation of acute and chronic pain.
2. To describe pharmacologic management of acute and chronic pain: detailing the mechanism of action of commonly used drugs as well as exploring new drug targets.
3. To highlight research approaches in the pain field that will facilitate better patient outcomes by way of individualized prognostic indicators and treatments.

OBIO 724: ORALFACIAL PAIN CONDITIONS

(1 credit) Spring Semester First Year

Course Director: Pei-Feng Lim

Enrolled Programs: ENDO, PERI, PROS

of Enrolled Students: 7

This is a 1-credit hour course given over a 6-week period. Faculty present didactic lectures and discussions are scheduled on Thursdays from 3pm to 5pm.

Course Objectives:

1. To provide an understanding on how to diagnosis a variety of orofacial pain conditions.
2. To provide an understanding of how to manage acute and chronic orofacial pain conditions

4. Core Course Evaluations by MS Students

Table 3. Online form used to evaluate instructor didactic instruction and courses

Course Instructor Didactic Instruction

Rated as N/A (0), Poor (1), Below Average (2), Average (3), Above Average (4), Excellent (5)

1. Organization of instructional material
2. Interaction during seminars/lectures
3. Management of seminars/lectures
4. Utilization of assignments, instructional materials, etc.
5. Overall quality of teaching

Comments:

Course Evaluation

1. The course content was consistent with course goals.
2. Educational experiences (i.e., labs, assignments) supported the course Educational experiences (i.e., labs, assignments) supported the course goals.

3. The course syllabus clearly outlined learning expectations.
4. The course content was presented in a logical sequence.
5. The number of exams, quizzes, projects, etc. allowed adequate opportunity for students to demonstrate competency/knowledge.
6. The exams reflected course objectives.
7. The course director was available to answer student's questions.
8. The course director provided timely feedback.
9. The course director provided appropriate feedback.
10. The course director served as a positive role model for students.
11. The course provided an important learning experience.
12. Please make any general comments about the course.
13. Please make any suggestions for improving the course.

After the semester ends, students are emailed a survey link and ask to evaluate each core course in which they participated that semester. Response rates vary but rarely exceed 40%. Overall, the evaluations for fall 2014 and spring 2015 were, on average, at least above average (3) (Table 4).

Table 4. Descriptive statistics for course evaluation responses for Fall 2014 and Spring 2015 Semesters

Item	Fall 2014 Mean	SD	Spring 2015 Mean	SD
Course Content was consistent with course goals	4.10	0.72	4.05	1.13
Educational experience (i.e. Labs, assignments) supported the course goals	4.12	0.62	4.05	0.78
The course syllabus clearly outlined learning expectations	4.18	0.48	3.95	1.13
The course content was presented in a logical sequence	4.01	0.76	3.95	1.13
The number of exams, quizzes, projects, etc. allowed adequate opportunity for students to demonstrate competency/knowledge	4.01	0.74	3.89	1.05
The exams reflected course objectives	4.29	0.59	4.21	0.80
The course director was available to answer	4.05	0.87	4.22	0.81

Evaluation summaries are reviewed by the Assistant Dean for Advanced Education and are provided to course directors at the end of each semester. Evaluation methods used to evaluate program specific courses and faculty are provided in the Program Specific sections.

5. Requirements for MS Degree (Table 5)

University of North Carolina Graduate School requires a minimum of 30 credit hours of graduate course credit and a minimum program residence of two full semesters. A written or an oral examination (or both) is required for degree completion. The definition of “comprehensive” varies from program to program (see Program Specific Sections) and is intended to conform to the best accepted practices within the discipline. A student passes an examination only after the approval of at least two-thirds of the examining committee members. The Graduate School considers the examining committee's vote to be final. A graduate student who fails either a written or oral examination may retake the exam. The student is expected to work with his or her program to identify areas needing additional emphasis and to establish an educational enhancement plan to prepare for taking the exam a second time. A student who fails an examination for the second time becomes academically ineligible to continue in the Graduate School.

Table 5. The MS Degree Requirements for Each Program

<u>PROGRAM</u>	<u>#</u>	<u>WRITTEN</u>	<u>ORAL</u>	<u>ORAL</u>	<u>THESIS</u>
	<u>Credits</u>	<u>COMPREHENSIVE</u>	<u>COMPREHENSIVE</u>	<u>Defense</u>	
<i>DENTAL HYGIENE EDUC</i>	36	YES	NO	YES	THESIS
<i>ENDODONTICS</i>	50	NO	YES	YES	THESIS
<i>OPERATIVE DENTISTRY</i>	45	YES	NO	YES	THESIS
<i>ORAL PATHOLOGY</i>	45	YES	NO	YES	THESIS
<i>ORAL RADIOLOGY</i>	50	YES	NO	YES	THESIS
<i>ORTHODONTICS</i>	50	YES	YES	YES	THESIS
<i>PEDIATRIC DENTISTRY</i>	50	YES	YES	YES	THESIS
<i>PERIODONTICS</i>	50	YES	YES	YES	THESIS
<i>PROSTHODONTICS</i>	50	YES	YES	YES	THESIS

6. Research Project / Oral Defense / Thesis

By the end of the fall semester of the first year, the student must identify a research topic and a thesis committee. The committee is composed of a minimum of three members of the Graduate School faculty, at least one of which should be a faculty member outside the student's program. This committee is responsible for guiding the student in the preparation and revisions of the thesis proposal and will, in general, assure an appropriate amount of research progress leading to an acceptable thesis.

All students in the nine graduate programs are required to participate in the research development program coordinated by the Assistant Dean for Advanced Education / Graduate Studies office. This schedule (Table 6) provides students with activity deadlines that help to ensure research progress is being made during the first year of the program

Table 6. Research Development Schedule for First Year MS Students

DEADLINES FOR MASTER'S THESIS ACTIVITIES
Advanced Education Programs
School of Dentistry
Academic Year 2014-2015

FIRST YEAR

Wed., January 7, 2015	1st Year MS Protocol Titles and Committee members due to Assistant Dean
Wed., April 1, 2015	Thesis Development Seminar (15-minute presentation on project)
Wed., May 13, 2015	Protocol due to Assistant Dean (electronic)
Mon., June 8, 2015	Peer Critiques due to Assistant Dean (electronic)
Thurs., June 11, 2015	1st Year MS Peer Study Session

The Thesis Development Seminars are held in the evening so that DDS, peer program students, and faculty members can attend. The format follows that of an AADR session (10 -minute

presentation with 5-minute discussion) and each session is moderated by a PhD student in Oral Biology. These required presentations assure that progress has been made toward the development of a thesis project, provides feedback to the student on ways to improve the protocol, and gives the student experience in developing and making an oral presentation.

The objectives of the Peer Review Study sessions are to provide Master's Degree students with the opportunity to apply in a critical and thoughtful way the concepts learned in the research core courses and to provide independent feedback on the research protocol of their peers. Each protocol is reviewed by a primary and a secondary reviewer who are not peers in the student's program. Each reviewer is required to write a critique of each of the protocols assigned to them. Students are instructed to write the review without consultation with the student investigator, faculty, or other students. The reviewers are expected to lead the discussion of their assigned protocols during the peer review session. Following the discussion of the protocol, all students provide an overall impact score (1=exceptional to 9=poor). Students are instructed that the impact score should reflect the assessment of the likelihood for the project to be successfully completed within the time frame, the significance of the project within the field, and the clarity of the methodological approach.

The peer critiques are provided to the student and their mentor for consideration and a final protocol has to be submitted to the Assistant Dean by the beginning of the fall semester of the 2nd year. The student is expected to meet with his/her committee at least once/year and provide the committee an annual progress report.

In 2013, the Office of the Associate Dean for Research and the Dental Foundation of North Carolina developed a plan to provide partial to full funding of MS research projects through a competitive review process. MS research protocols that are scored in the top half of all protocols discussed during the Peer Review Session are invited for a second round of review by faculty. Among those reviewed ~50% were selected for MS Research Support awards. Since 2013, \$30,000 has been provided to 16 MS students to defray the cost of their research projects and presentation at a professional/research meeting.

The primary intent of the MS or alternative degree such as the MPH is to teach the student the scientific method and critical thinking skills through the engagement in all components of research: design, data collection and analysis, interpretation of findings, and writing a report. The expectation is that the student's project is of sufficient scope and quality for formulation and submission for publication in a peer reviewed journal.

The School of Dentistry guidelines for MS thesis formats supplement the UNC Graduate School's guide on preparing a thesis. Either of the two MS thesis formats described below are preferred to a traditional thesis format. Regardless of the format, the final document must

conform to that of a thesis in which all parts are related and integrated. These two formats allow students to easily convert the thesis into manuscript(s) that can be submitted to appropriate journals for peer review and publication.

I. The first thesis option is a combination of one publishable (or published ++) manuscript preceded by a detailed Review of the Literature. The overall format of this first option thesis must be in keeping with Graduate School requirements.

II. The second thesis option consists of two or more publishable (or published ++) manuscripts. For this option, if submitted prior to graduation, the student must be first author on at least one of the manuscripts although not the corresponding author. The manuscripts must be publishable separately. As in the first option, the overall format of this thesis option must be in keeping with Graduate School requirements.

The student must complete the work to the satisfaction of the thesis committee, successfully defend the thesis, and deliver a final copy of the thesis to the Graduate School. Due to the lengthy review process involved with many journals, it is not necessary for the manuscript(s) to be accepted for publication prior to completion of the degree. Whether the manuscript(s) must only be “ready to submit” to a journal or “submitted” is determined by the program/committee.

7. Evaluation of Progress of Graduate Students during Training

Evaluation of student progress is an important aspect of the development of student skills and competencies. During years 1 and 2, course grades that include grades for core courses, clinical performance, and program specific courses as well as program specific student evaluations (See Program Specific Sections) provide information on student progress that is reviewed and discussed every semester by the program-specific Academic Performance Committee (APC). The composition of each program’s APC is determined by the program. APC membership may include, for example, all full-time faculty; all tenured faculty; or program director, chair, and clinic director. The committee must include at least 3 members. Staff members may provide input to the committee but may not be members.

The APC performs the following functions:

- Reviews all students with respect to their academic performance, patient care performance, professionalism, and compliance with technical standards as a matter of course at the end of the fall and spring semesters and as necessary at any point during the semester.
- Develops educational enhancement plans to address concerns or deficiencies identified by course directors and/or clinic directors.
- Recommends actions to the Assistant Dean for Advanced Education/Graduate Studies that may include, but are not limited to, recommending that students be placed upon

academic or patient care probation, receive extensions of the length of time in the program, take a reduced academic or clinical schedule, or be dismissed from the certificate and/or MS program.

In the fall and spring semesters of year 3, students continue clinical care and are encouraged to attend clinical care seminars in preparation for comprehensive and board examinations. Students are expected to focus on their research project during these semesters and are registered in 993 (Master's Thesis course). Each semester, the student's mentor is required to complete an end of semester evaluation to ensure that students are progressing in a timely way towards oral defense and thesis submission (Table 7).

Table 7. Evaluation Form Completed by Mentor

Mentor MS Performance Report _____Semester ____Year

Mentor Name: _____

Student: _____

Did the student successfully defend his/her thesis?

_____Yes _____No

(If yes please enter suggested grade, sign and submit)

If no, please complete the following

The student's research progress this semester was:

_____Inadequate _____Weak _____Adequate _____Excellent

The student's effort this semester was:

_____Inadequate _____Weak _____Adequate _____Excellent

Suggested grade:

_____Low Pass _____Pass _____High Pass (Recommended for semester student defends)

Please enter any comments or concerns about the student's research performance (optional, but preferred).

Students WILL be allowed to view their assessment record.

Comments are required if the suggested grade is Low Pass

Progress Discussed with Student This Semester: ____Yes ____No

Mentor Signature

Date

8. Learning Outcomes Assessment

Learning outcomes assessment is a continuous process that constantly evaluates student progress, the effectiveness of courses, and the quality of teaching. The global outcomes assessments for all MS programs as submitted to the Southern Association of Colleges in

January 2015 are given below. The Learning Assessments implemented by the different graduate programs are included in the Program Specific Sections.

Education Goal: To conduct high quality dental education programs at the graduate, doctoral and postdoctoral levels.

Admissions (Program Directors)

Responsibility: Assistant Dean for Advanced Education/Graduate Programs

Objective: To admit students with outstanding qualifications for advanced training

Action: Continue to recruit applicants with strong academic, clinical, and research credentials. The continued ability to provide Graduate Teaching Assistantships with a stipend and tuition remission is an important aspect of recruitment

Curriculum (Program Faculty)

Responsibility: Assistant Dean for Advanced Education/Graduate Programs and Advanced Education Program Directors Committee

Objective: To review didactic and seminar content annually through program meetings and student evaluations

Action: Revise and update core and program specific courses annually

Ethics and Professional Goal: To ensure that graduates adhere to ethical principles and professional conduct

Responsibility: Assistant Dean for Advanced Education/Graduate Programs and Program Directors

Objective: To train students in ethical reasoning and decision making

Action: Continue to provide students with information, instruction, and practice in the principles of ethical reasoning, ethical decision making and professional responsibility

Patient Care Goal: To provide high quality comprehensive, primary and specialized oral health care.

Responsibility: Associate Dean for Clinical Affairs

Objective: 100% compliance of students with biannual Basic Life Support training, NC Dental Board Licensing, University, School and EHS requirements

Outcome: Objective met but enforcement of compliance requirements remains difficult because of variety of reporting units and lack of database that tracks and records all compliance requirements

Action: A software application to assist in tracking training requirements and compliance is under development.

Quality of Patient Care (Program Director and Faculty)

Responsibility: Associate Dean for Clinical Affairs and Program Directors

Objective: Patient care progresses in a timely manner

Action: Treatment planning and case reviews by faculty provide continuous feedback to students and to program re instituting changes for clinic operation

Objective: To provide quality care to patients

Action: Treatment planning and case reviews by faculty provide continuous feedback to students and to program re instituting changes re treatment requirements, expectations of residents

Research Goal: To generate new knowledge in the basic, applied, and clinical sciences that is directed at the promotion and advancement of oral health and function.

Research Mentoring (*Research Mentors & Committee Members*)

Responsibility: Assistant Dean for Advanced Education/Graduate Programs

Objective: To ensure appropriate and adequate mentorship and student progress in research

Action: A Formal Evaluation Process was implemented in 2014 for MS students enrolled in 993 courses for the fall and spring semesters of their terminal year.

Responsible Conduct (*Research Mentors & Committee Members*)

Responsibility: Assistant Dean for Advanced Education / Graduate Programs

Objective: To ensure responsible conduct of research by students

Action: All students are required to complete CITI Biomedical Human Subjects training and as of Fall 2015, students will be required to complete the following RCR (Responsible Conduct of Research) modules: Authorship; Conflicts of Interest; Data Management; Mentoring; Peer Review; Research Misconduct; Plagiarism. Completion will be required in the first year fall semester in the research core course Research Design. Lecture hours will be added to the three research core courses to re-inforce these topics.

Successful Completion of MS Project and Thesis

Responsibility: Research Mentors & Committee Members

Objective: Encourage advanced education students to seek external research funding

Action: Continue to encourage and support students to apply for external research funding. Orthodontics and Endodontics require students who do not have research support from faculty funding to submit their protocols to the respective professional organizations for funding. Consultation services on research design and statistical analysis are supported by the School of Dentistry.

Objective: Publication of thesis as a manuscript

Action: Continue to encourage MS students to prepare their thesis in the format of an expanded literature review and manuscript and to submit the manuscript submission prior to graduation. Unfortunately, mentors are usually listed as the corresponding author since virtually all students will have graduated prior to the completion of the peer review process which can take between 3-6 months and students may not have the skill or resources to respond to reviewer critiques. This frequently leaves the completion of requested manuscript revisions the responsibility of faculty.

C. GENERAL FACULTY OVERVIEW

The School of Dentistry currently has 142 compensated faculty. Of these, 97 are full-time and 45 are part-time but at least one day/week. Approximately two-thirds of the faculty have primary responsibilities in other areas of the School of Dentistry, for example, the DDS, Dental Assisting, and Clinical Certificate only programs, in administration, or in research. Faculty not actively engaged in the didactic and clinical components of the MS / BSDH programs as well as faculty from other departments at UNC frequently participate as lecturers in MS / BSDH courses and/or serve as research advisors or as research committee members (see General MS Student Overview section).

Fifty-three full-time and four part-time faculty, who are at least 50% FTE, actively participate in the didactic, clinical and research components of the BSDH / MS programs.

Table 8: Number and Demographic Characteristics of Faculty by Program with Breakdown by Rank

Programs	#Faculty - Active	Full Prof	Assoc Prof	Assist Prof	Clin Prof	*Clin /Res Assoc Prof	Clin Assist Prof
BS DH	5	1				1	3
DHED	2	1					1
ENDO	4		2	1		1	
OPER	10	4	3			1	2
OPATH	3	1	1			1	
ORAD	3	1			1	1	
ORTHO	7	2	4				1
PEDO	6	2	2		1	1	
PERIO	7	2	1			2	2
PROS	10	3	2	1		1	3
	57	17	15	2	2	9	12
Average Age (SD)	52.3	62.00	50.71	40.50	70.50	51.00	42.17
Age (SD)	11.2	2.83	8.64	2.47	4.95	6.28	10.08
% 60 or older	33%	72%	21%	0%	100%	0%	0%
% Female	41%	28%	50%	0%	0%	25%	54%
% Caucasian	64%	78%	50%	50%	50%	56%	69%
% African American	5%	0%	14%	0%	0%	0%	8%
% Hispanic	19%	11%	21%	0%	50%	44%	8%
% Other	12%	11%	7%	50%	0%	0%	15%

*1 is a Research Associate Professor

1. Age Distribution

The average age of the BSDH / MS faculty is 52.3 years old (SD = 11.2). As would be expected, Full Professors (Tenured or Clinical) are the oldest, on average, with approximately a 10-year difference, on average, between full and associate and between associate and assistant professors. Almost 75% of the Full Professors (Tenured or Clinical) are 60 or older. The overall age distribution suggests that the MS programs have some vulnerability to “aging out” and will likely suffer some significant effects from retirement over the next decade. Unfortunately, there is no way to project the number of retirements. The School of Dentistry faculty are tending to work longer and/or to enter phased retirement. The Department Chairs and the Dean will continue to monitor this issue and strive to rejuvenate program’s faculty ranks through the recruitment of Assistant Professors (Tenure Track or Clinical) in the program of a retirement. In the past 12 months, the SOD has hired 11 new full-time faculty. Three of these faculty will be actively involved in the MS programs (2 in Periodontics and 1 in Orthodontics). Currently, searches that will impact the MS programs are underway for the Chair of Endodontics, Graduate Program Director in Pediatric Dentistry, Graduate Program Director in Prosthodontics, and for faculty members in orthodontics, radiology, operative dentistry, and dental hygiene.

2. Ethnicity / Racial Diversity

The faculty includes 24% under-represented minorities: 5% African American and 19% Hispanic. This represents a slight improvement in faculty diversity in the BSDH and MS programs, particularly in Hispanic representation, since the last Graduate School review. Currently, 41% of the faculty is female. However, all of the faculty in the dental hygiene areas (BSCH and MS DHED) are female, representing 33% of the female total.

The University of North Carolina-Chapel Hill and the School of Dentistry are committed to the precept that diversity within the student and faculty community enhances the educational and professional development of its students. The UNC Diversity and Multicultural Affairs office provides consulting services related to diversity education, training and development, strategic planning, team building and talent management as well as professional development opportunities and links to faculty and staff organizations and resources.

(<http://diversity.unc.edu/about/>). The University supports diversity in the hiring of faculty and staff. The following statement is included with any UNC faculty job posting: *“The University of North Carolina at Chapel Hill is an equal opportunity, affirmative action employer and welcomes all to apply regardless of race, color, gender, national origin, age, religion, genetic information, sexual orientation, gender identity or gender expression. We also encourage protected veterans and individuals with disabilities to apply.”*

The School of Dentistry established a new committee, the Inclusive Excellence Committee, in the fall of 2014 <https://www.dentistry.unc.edu/about/diversity/>. An open invitation was issued to faculty, students, and staff to participate and there is wide representation from across the school on the committee. The committee is comprised of three separate subcommittees – Educational Environment, Curriculum, and Recruitment and Retention. The committee is working to accomplish the following activities: Publicly state and display our commitment to diversity and inclusivity; create and promote "safe places" for anyone to discuss and engage in diversity and inclusivity concerns with confidentiality and receptive understanding; and provide ongoing opportunities for diversity and inclusivity orientation/training. Current projects of the committee include developing a web presence on the SOD website; development of a general syllabus statement regarding inclusive excellence and diversity; and a current climate survey on inclusive excellence and diversity. And the SOD Academic plan includes the mission to recruit and retain a diverse faculty <https://www.dentistry.unc.edu/about/mission-pillars/>. Dr. Rumay Alexander, Clinical Professor in the School of Nursing, has been hired as the Chief Diversity Officer for the School of Dentistry. As the chair of the committee, she regularly reports on progress to the Dean's cabinet.

3. Salary Comparability

There are multiple difficulties in comparing salaries at each rank within specialties with comparable institutions. First, total compensation which includes not only guaranteed annual salary but also fringe benefits and possible income from faculty practice, incentives, and bonuses depends on the institution's model for clinical practice (internal vs. external) and on incentives for teaching and research. Salaries are also influenced by the consumer price index. The increase over the past years in the South has been appreciably lower than in other regions of the country. In addition, state funding for public institutions has sharply decreased potentially widening the compensation gap between private and public institutions and requiring that public institutions reconsider the business models that support the educational and training process. The state support to the School of Dentistry has decreased from 29% in FY2000 to 12.4% in FY2015. This decrease represents an allocation drop of five million dollars. As one response to this decrease, the School of Dentistry has been granted approval to increase the professional tuition charged to MS students that is returned to the School. These additional funds will be used for faculty recruitment and retention, equipment replacement, and student financial aid.

Besides these more universal factors affecting all public institutions, internal pressures at UNC reflect the difference in the business models that underlie the faculty practices, and therefore the clinical practice incentive potential, in the Schools of Medicine and Schools of Dentistry. The NC Legislature (and therefore the University) failed to appropriate funding for salary increases in 2008, 2009, 2010, 2011, and 2013. The School used its own funds to grant promotional and retention increases to faculty in those years as needed, but only a limited number of faculty were impacted. There was a 1% pool of money for EPA in 2012 and a 2%

pool of money for EPA in 2014. This has resulted in an additional internal negative pressure because of the failure of average change in salary for faculty who have been at UNC for more than five years to keep pace with retention packages and new hire compensation package. The ability to recruit new and to retain existing faculty is also negatively affected by the disparity between academic salaries and potential private practice income. Even with these negative pressures, the average salaries at UNC (Table 9) are in line with those last reported by the ADEA for public institutions (last report was for 2012-13). And the SOD has been successful in recruiting 30 new full-time faculty in the last four years.

Table 9. School of Dentistry Quartiles for Salary by Rank for Faculty Actively Engaged in MS and BSDH Programs

Rank	Median	Q1 ; Q3
Full Professor	\$182,075	\$141,615; \$228,942
Associate Professor	\$149,972	\$134,882; \$184,348
*Assistant Professor	\$149,032	NA
*Clinical Professor	\$137,053	NA
Clinical Associate Professor	\$163,462	\$134,078; \$207,688
Clinical Assistant Professor	\$101,500	\$ 61,458; \$146,960

*N = 2 faculty only

4. Faculty Compensation

The UNC School of Dentistry Compensation Incentive Plan is designed to fairly, systematically and transparently lay out a structure for compensating faculty in clinical, research, and teaching activity. This plan builds upon previous compensation plans and traditions of the School, most notably, the Dental Faculty Practice compensation structure. The goal of this plan is to allow faculty members to be appropriately rewarded for their activities using a multi-component system

This plan seeks to establish an equitable framework for the entire faculty but acknowledges that each faculty member’s specific expectations are expressed in individual Terms and Conditions, negotiated by the Dean’s Office in consultation with the faculty member’s department chair, and signed by the individual faculty member. Salary components normally are reviewed annually coinciding with the Annual Raise Process but could occur on a different schedule, if determined to be advantageous by the Dean.

This plan is applicable to all permanent full-time faculty members of the School of Dentistry and was approved by the Provost on June 2, 2015.

Faculty members at the School of Dentistry are paid according to an X, Y, and Z formula. The X component represents the school's contribution to the salary for didactic and clinical teaching, mentoring activities, and research / scholarly activities. The base salary (X component) is largely determined by the specific faculty member's terms and conditions (TC) document, based on his or her defined appointment. Variables that may influence base salary are experience, education, training, rank, board certification, and other considerations, such as equity within the unit. The base salary will remain as long as the faculty member is employed, but can be adjusted either up or down based on state appropriated salary increases, faculty member performance, financial conditions of the department and school, salary benchmarks, market conditions, and issues of retention and salary equity.

The Y component equals the portion of the core salary (X+Y) that represents the faculty member's annual contribution to their salary from non-state sources. Currently the expectation of salary support generated by the faculty member can vary from 0%-50%. Primarily, the sources of this non-state salary support are from the Dental Faculty Practice (DFP) and funded research endeavors, but may include Dean approved sources, such as contracts or recharge centers.

During periodic performance/Annual Raise Process (ARP), the X and Y components are reviewed and may be adjusted and set anywhere along the sliding scale. The X:Y ratio is adjustable and is largely affected by expected and realized productivity from non-state revenue sources. Establishing the Y component is based on (1) how much of the faculty member's time and effort is allocated to teaching, research and scholarship, patient care, and service and engagement, and, most importantly, (2) how much non-state revenues the faculty member is projected to generate from these activities.

The Z component represents supplements after the faculty member has met the Y expectation. Z components can come from clinical productivity above expectation, research productivity above expectation, administrative supplements, and distinguished professorships. Administrative supplements can be provided by the Dean.

After satisfying the core salary non-state expectation (Y), faculty members can supplement their core salary by means of a DFP and/or research supplement. The salary supplement is based on last fiscal year's productivity and base salary expectation. DFP supplement (Z1) is paid to the faculty member as part of their salary the year after it is earned. A Research supplement (Z2) can be earned after satisfying the core salary faculty expectation (Y). Faculty members can generate a research fund equal to 40% of dollars offset above the non-state expectation. The research fund is based on last fiscal year's productivity and core salary expectation and is returned to the faculty member via a research fund managed by the School

or salary supplement that is determined during the Annual Raise Process. The Z2 portion could be placed in an account that can be used by the faculty member for promoting their research and/or, educational activities. If the faculty member chooses to have a research fund, that fund is subject to university purchasing rules. However, up to 50% of the annually derived Z income can be added as a salary supplement. This permits faculty to grow a mission-based trust fund.

Administrative supplements (Z3) are given to faculty members taking on administrative roles that are necessary for the continuation of an effective School. The salary supplements they receive for performing such duties are set at the discretion of the Dean. University and School-based Professorships (Z4) often carry with them supplements to a faculty member's salary. Supplements from professorships are based on the conditions of the award in relationship to the size of the fund.

Currently, unlike clinical and research activities, teaching does not generate a revenue stream that can fund a Y or Z component. Consequently, the school intends to create a number of school-based awards that will be presented to faculty to reward excellence in teaching activities during the academic year. These awards will be presented to faculty at the end of the academic year. Only full time faculty would be eligible.

In addition to salary compensation, the standard UNC benefit package, which is calculated on the total salary (X+Y+Z components) generally amount to 22% of salary plus health insurance coverage (usually in the range of \$5,285). Further, there are benefits that can be reimbursed based upon participation in the Dental Faculty Practice (tied to personal and departmental performance). The value of supplemental benefits covered under the Dental Faculty Practice can exceed \$10,000 depending upon the specialty.

External activities for pay, including consultation, are permitted with concurrence of the Department Chair and Dean, in accordance with university policies ('External Professional Activities Policy'). The dental school supports community service efforts including a provision that allows faculty to provide continuing education and AHEC program offerings. Time allocation can be up to one half-day per week with concurrence from the Department Chair. Faculty may also take advantage of patent and copyright opportunities as provided under the University policies.

5. Assessment of Faculty Strengths and Areas of Concern

School of Dentistry faculty are committed to the missions of the school and the university. That commitment is shown by their devotion to the school in fulfilling their job responsibilities, their engagement with students at all levels in internal and external activities, and their leadership roles in their respective disciplines.

A major concern is the steady shrinking of the state support to the School of Dentistry. The decrease in state support has multiple implications that can negatively affect the quality of the UNC programs. First, as state support decreases, more emphasis will need to be placed on the Y and Z components to maintain salary competitiveness for recruitment and retention. This necessitates more time and effort devoted to non-teaching activities where teaching encompasses not only didactic instruction and clinic coverage but also research advising and mentoring of students. Second, a source of support not only for salaries and student stipends but general school wide clinical expenses is clinic income generated by graduate students. However, pressure to increase clinic productivity and/or clinic time by the clinical specialty students can negatively detract from the intellectual and critical thinking development of these students and the quality of the research they perform.

6. Administrative Assessment of Faculty

Faculty are reviewed annually. After receiving an individual faculty member's updates on the past year, the Department Chair meets with each faculty member to discuss the faculty's self-assessment and then prepares an individual faculty evaluation with a performance criteria rating (1 to 5, with 5=best) for each of the following categories: teaching, scholarly activity, research, service, dental faculty practice, and administration (if appropriate). The ratings are weighted by the faculty member's percent effort in each category. Professionalism is also rated but not weighted. Each faculty member is also expected to prepare a set of goals for the next year.

All faculty, including the Department Chair and Program Director, are then reviewed by the Dean of the School of Dentistry with input from members of the Dean's Cabinet: the Executive Associate Dean, the Associate Dean for Education, the Associate Dean for Research, the Associate Dean for Clinical Affairs, the Assistant Dean for Advanced Education & Graduate Studies, the Assistant Dean for Human Resources, and the Dental Faculty Practice Director. Feedback is provided to the Department Chair on the evaluation of each faculty member. Department Chairs are then responsible for meeting with each faculty member as a final review.

7. Faculty Mentoring: Policies and Practices

Assistant and associate professors have many opportunities for professional development in the areas of teaching and scholarship. The SOD Faculty Development program offers seminars throughout the year including a Faculty Enrichment Series, Clinical Update topics, guest speakers from campus (Center for Faculty Excellence) and other institutions, as well as opportunities for travel to professional meetings. For the past several years, junior faculty have been awarded travel grants from the SOD to attend the American Dental Education Association

annual session. Other junior faculty have been provided travel support to attend the American Dental Association Evidence Based Practice conferences.

The Director of Faculty Development, Prof. Rebecca Wilder, meets with assistant professors (all tracks) in the SOD once per semester to discuss topics that are pertinent to early career development. In addition, all junior faculty are invited to attend seminars regarding promotion and tenure procedures twice per year. The Director of Faculty Development is available to all junior faculty by appointment to discuss career advancement opportunities.

In the fall 2013, a formal mentoring program was implemented in the School of Dentistry for all full-time assistant professors (all tracks). New faculty are assigned a departmental contact (faculty member in the department) who will act as a resource to the faculty member as they acclimate to the dental school. In addition, within three months of being hired, the assistant professor is assigned a mentoring team (MT) consisting of 2-3 individuals selected by the Department Chair in consultation with the Assistant Professor and the Director of Faculty Development and/or the Associate Dean for Research in the case of research faculty. One of the mentors is a full professor who can assist the mentee with research/scholarly development and/or teaching (as indicated in their terms and conditions). Another member is at the associate or full professor rank. The MT is expected to meet with the assistant professor as soon as possible after the MT has been assigned (within two months) and meet at least two times per year. The assistant professor is responsible for compiling a record of scholarship and teaching and the MT provides specific guidance regarding the expectations and available resources. The MT chair submits a brief annual report to the Department Chair and the Director of Faculty Development before the faculty member's SOD annual review. While the MT serves as a wonderful resource of support and guidance for the junior faculty member, the ultimate responsibility for career mentorship is still expected to come from the faculty's Department Chair. The program has recently been expanded so that associate professors (any track) may request a mentoring team. Currently there are 28 teams in place.

Post-tenure review is a systematic process for the periodic, comprehensive review of the performance of all faculty members having permanent tenure and whose primary duties are teaching, research, and service. The goals of post-tenure review are to promote faculty development, ensure faculty productivity, and provide accountability. More specifically, in the School of Dentistry, post-tenure review process serves as an additional means of fostering the School's mission of excellence in teaching, research, service, and patient care. To achieve this, the review process assists individual faculty members in their ongoing professional development as they strive to enhance their skills as teachers, their accomplishments as scholars, and their contributions to the profession and the public. Each faculty member is subject to post-tenure review at least once every five years following the conferral of permanent tenure. Reviews examine all aspects of a faculty member's academic performance

and are flexible enough to acknowledge different expectations in various disciplines and changing expectations at different stages of faculty careers.

8. Appointment, Promotion and Tenure

The Promotion and Tenure Committee is charged to act in an advisory capacity to the Dean on recommendations from department chairs regarding promotion and tenure decisions and to make a written recommendation to the Dean and a verbal report to the assembled Full Professors Committee. The Appointment, Promotion, and Tenure Manual (Appendix 4) provides guidelines and serves to clarify additional requirements for faculty appointments, reappointments, and promotions in the School of Dentistry. The purpose of this document is to facilitate the evaluation of faculty in the promotion process by describing criteria to be applied in making promotion and tenure decisions. An additional purpose is to provide a set of guidelines that may be useful in guiding individual professional development. These criteria allow consideration of a wide range of the activities of all faculty members. Faculty appointments, reappointments, and promotions in the School of Dentistry are recommended in accordance with *The Trustee Policies and Regulations Governing Academic Tenure in the University of North Carolina at Chapel Hill*. Faculty may be evaluated in terms of their teaching, scholarship, and professional and community engagement/service. For the period being evaluated, the weights applied to these three areas in reaching a promotion and tenure decision generally will reflect the proportion of time allocated to each area in the candidate's Terms and Conditions of Appointment Statement as may be modified by the Chair during their employment.

The Manual was revised, reviewed, and approved by the School of Dentistry administration and reviewed by faculty at several general faculty meetings. Faculty will be asked to vote on acceptance in early fall semester 2015. It is expected to be fully implemented in fall 2015. (Appendix 4)

9. Faculty Research

The University of North Carolina at Chapel Hill (UNC-CH) is a major research university. For the past 25 years, the UNC-CH SOD has consistently ranked in the top 10 dental institutions in the nation as assessed by funding provided by the National Institute of Dental and Craniofacial Research (NIDCR) and the National Institute of Health. Total awards for 2014 place the UNC-CH SOD number 6 of 52 dental institutions in the nation in funding from NIDCR with over \$7 million in funded research (Table 10). The SOD ranking in 2014 reflects a strong motivation and ability of our faculty to obtain and maintain extramural research support. The SOD continues to enjoy an excellent reputation due to the significant amount of peer-reviewed funding from external sources in addition to NIH (Table 11) and publications by faculty and students, the excellence of applicants and graduates, and the outstanding curriculum offered to its students in the dental specialties and dental hygiene.

Table 10. NIDCR funding for the School of Dentistry grants between FY 2010 and FY 2014

UNC School of Dentistry NIDCR Funding		
Year	Rank	Annual Funding
FY 2010	8	\$9,678,580
FY 2011	7	\$6,111,574
FY 2012	5	\$8,352,978
FY 2013	5	\$7,838,057
FY 2014	6	\$7,192,405

Table 11. Annual External Funding for School of Dentistry Research

Annual NIDCR Funding, Other Federal Funding and Non-Federal Funding (Foundations, Associations, Industry, Other)						
Year	Total Funding All Sources	NIDCR Funding ¹	Other Federal Funding ²	Total NIH Funding	Funding from Other Sources ²	Percent Non-NIDCR Funding Sources ²
FY 2010	\$12,071,868	\$7,078,650 ¹ \$7,321,509 ²	\$1,644,612	\$8,966,121	\$1,923,781	29.56%
FY 2011	\$11,369,684	\$6,111,574 ¹ \$7,051,642 ²	\$1,830,132	\$8,881,774	\$2,487,910	37.98%
FY 2012	\$11,657,874	\$8,352,978 ¹ \$6,120,689 ²	\$2,826,950	\$8,947,639	\$2,710,235	47.50%
FY 2013	\$12,759,405	\$7,838,057 ¹ \$6,943,055 ²	\$3,701,544	\$10,644,599	\$2,114,806	45.58%
FY 2014	\$11,029,178	\$7,192,405 ¹ \$4,721,654 ²	\$4,148,058	\$8,869,712	\$2,159,466	57.19%

¹ NIDCR Grants to U.S. Dental Institutions as reported by Federal Government Fiscal Year (October to September)
http://www.nidcr.nih.gov/grantsandfunding/NIDCR_Funding_to_US_Schools/DentalSchools/
² UNC-CH RAMSES Reporting Major Funding by Fiscal Year (July to June)

Research funding for faculty, as a principal investigator or as an investigator, who are actively engaged in the MS and BSDH programs is provided in Table 12 and 13.

Table 12. Research Funding as Principal Investigators for Faculty Actively Involved in the BSDH or MS Programs

PI, Project Title, Award Amount, Sponsor, Investigator (Program), End of Project Date
Names in **bold** indicate faculty actively involved in the BSDH or MS programs

BS Dental Hygiene and Dental Hygiene Education

***R. Wilder.** Clinical Trial of PeriZone PerioPatch in Subjects with Chronic Periodontitis. \$120,659.00. MIS Implant Technologies Ltd. 5/14/2014

***R. Wilder.** North Carolina Cardiologists' Knowledge, Opinions and Behaviors Regarding Periodontal Disease and Cardiovascular Disease. \$6,123.00. American Dental Hygienists Association (ADHA). 12/31/2013

*Also Director of Faculty Development

Endodontics

P. Tawil. CBCT Uses in Clinical Endodontics-Part 1: Effect of CBCT on the ability to locate MB2 in maxillary molars; Part 2: Specificity and Sensitivity of detecting periapical lesions using CBCT. \$3,900.00. American Association of Endodontists. 6/15/2016

P. Tawil. Periapical Microsurgery: The Effects of Locally Injected Dexamethasone on Post-operative Healing. \$3,327.00. American Association of Endodontists. 4/30/2015

A. Khan. Genome-wide gene expression profile of inflamed dental pulp in humans: implications in clinical diagnosis and symptoms of pulpitis. \$17,467.00. American Association of Endodontists (AAE). 3/31/2015

A. Khan. Prospective and retrospective analyses of regenerative treatment outcomes in immature permanent teeth. \$66,666.00. American Association of Endodontists (AAE). 12/31/2015

A. Khan. Regeneration of Pulp-Dentin development in Immature Permanent Teeth with Pulp Necrosis. \$55,509.00. University of Texas at San Antonio. **J. Lee (PEDO)** 6/30/2012

***M. Pettiette.** The Effect of Statin Drugs on Altering Calcification patterns of the Dental Pulp. \$3,000. American Association of Endodontists 12/31/2012

*Now Assistant Dean for Admissions

Operative Dentistry

L. Boushell. Clinical Evaluation of Total-Etch and Self-Etch Dental Adhesives - 6 year Recall. \$14,174.00. Dentsply Caulk. 10/31/2016

A. Ritter. Clinical Evaluation of a New Two-Component Self-Etch Universal Adhesive. \$31,920.00. Kerr Corporation. 8/15/2014

***E. Swift.** Investigation of Dental Composite Interaction with Biofilms. \$227,267.00. National Institute of Dental and Craniofacial Research. **J Wright (PEDO)** 8/31/2012

*Now Associate Dean for Education

R. Walter. Clinical Evaluation of New Total-Etch and Self-Etch Dental Adhesives. \$22,460.00. Dentsply Caulk. **A.Wilder, A Ritter, E Swift, J Sturdevant (OPER).** 6/30/2012

Oral & Maxillofacial Pathology

A. Curran. Clinical Evaluation of Bioadhesive Gels for Oral Cancer Chemoprevention. \$149,073.00. Ohio State University. 8/31/2012

Oral and Maxillofacial Radiology

J. Ludlow. Pediatric Risk of Orthodontic CBCT Imaging: Development of Simplified Dosimetry. \$375,179.00. National Institute of Dental and Craniofacial Research. **C. Phillips (ORTH).** 6/30/2014

Orthodontics

C. Ko. Engineering novel bio-inspired materials for stem-cell mediated bone regeneration. \$915,661.00. NIH National Institute of Dental and Craniofacial Research (NIDCR) 2/28/2019

C. Ko. SBIR-Nano-Crystalline Ceramic Coating for the Reduction of Sliding Resistance of Orthodontic Archwires. \$278,674.00. Spire Corporation. C. Phillips (ORTHO) 8/31/2016

T. Nguyen. SBIR- Real-Time Image Guidance for Improved Orthognathic Surgery. \$75,000. Kitware, Inc. 07/31/2015

***C. Phillips.** Caregiver responses to nasoalveolar molding and early cleft care. \$40,236.58. New York University. 02/28/2015

***C. Phillips.** Influences on Stability Following Orthognathic Surgery. \$1,754,107.00. National Institute of Dental and Craniofacial Research. G Essick (PROS), T. Nguyen (ORTHO), J Ludlow (ORAD) 03/31/2015

*Now Assistant Dean for Advanced Education & Graduate Programs and Program Director Curriculum in Oral Biology

C. Ko. Evaluation of a New Biomimetic Cement (Gemosil) for Use in Endodontic pulp Therapy as Compared to the Widely Used Mineral Trioxide Aggregate (MTA). \$11,935.00. American Association of Endodontists (AAE) 12/31/2013

C. Ko. Engineering a New Biomaterial for Stem-Cell Mediated Bone Regeneration. \$254,736.00. National Institute of Dental and Craniofacial Research 7/31/2012

C. Ko. SBIR-A Novel Biomimetic Bone Cement For Immediately Loaded Dental Implants. \$66,723.00. Southeast TechInventures, Inc. 8/31/2011

Pediatric Dentistry

***E. Everett.** Training Program for the Next Generation of Oral Health Researchers (NextGen) \$1,041,326.00. National Institute of Dental and Craniofacial Research **J Lee (PEDO)** **S Offenbacher (PERIO).** 6/30/2016

*Now Associate Dean for Research

***E. Everett.** Genetic Determinants of Physiological Responses to Fluoride in Bone. \$1,573,337.00. National Institute of Dental and Craniofacial Research 6/30/2015

***E. Everett.** The Role of ER-stress and pH in Fluorosis. \$56,289.00. The Forsyth Institute. 4/30/2015

J. Lee. Examination of Oral Health Literacy in Public Health Practice. \$1,740,689.00. National Institute of Dental and Craniofacial Research. **K. Divaris (PEDO).** 7/31/2015

R. Quinonez. Proposal for the Development and Sustainability of a Prenatal Oral Health Website: Resources for Prenatal and Dental Providers. \$49,000. Blue Cross Blue Shield of North Carolina Foundation. 8/30/2015

R. Quinonez. The Samuel D. Harris Fund for Children's Dental Health. \$3,369.00. American Dental Association Foundation. 3/27/2015

R. Quinonez. Implementing a Prenatal Oral Health Program: an educational collaboration between medicine and dentistry. \$5,000. American Association of Public Health Dentistry. 4/30/2014

***J. Wright.** Caries Risk Assessment in Children Using Metabolomic and Microbiomic Tools to Determine Caries Potential in Oral Biofilms. \$30,000. Delta Dental Foundation. 8/31/2014

R. Quinonez. Implementation of the Prenatal Oral Health Program-Breaking the Dental Caries Cycle. \$100,000. Blue Cross Blue Shield of North Carolina Foundation. 9/15/2013

***J. Wright.** Enamel mineral formation during murine odontogenesis. \$199,020.00. University of Pennsylvania.
1/31/2013

***J. Wright.** Eighth International Symposium on Tooth Enamel: Development, Properties and Path. \$15,000. National Institute of Dental and Craniofacial Research. 11/30/2012

*Also Director of Strategic Initiatives and Interim Chair of Endodontics

Periodontology

S. Offenbacher. Role of IL-37 genetic variants in Modulating Innate Immune Response to Periodontal Pathogens. \$377,482.00. NIH National Institute of Dental and Craniofacial Research (NIDCR)

S.Barros (PERIO), S.Bencharit (PROS). 5/31/2019

F. Teles. Targeted Cultivation of New Periodontal Pathogens. \$394,452 National Institute of Dental Craniofacial Research. **R Teles (PERIO)** 12/31/2018

S. Offenbacher. An Examiner Training of Antiplaque/Antigingivitis Efficacy of an Essential Oil Containing Mouth Rinse Using the Two-Week Experimental Gingivitis Model. \$177,895.00. Johnson and Johnson **T. Morelli (PERIO).** 1/26/2016

S. Offenbacher. Multi-Center Phase 3 Trial of Minocycline HCL 1mg Microspheres for the Use in Subjects with Peri-Implantitis. \$111,188.00. OraPharma, Inc. 8/27/2016

S. Offenbacher. Multi-Center Phase 3 Trial of Minocycline HCL 1mg Microsphere for the use in Subjects with Peri-Implantitis: Clinical and Microbiological Evaluations. \$34,368.00. OraPharma, Inc. 4/30/15

S. Offenbacher. A molecular and cellular comparison of bone inductive properties of trabecular metal vs titanium among healthy, diabetic and osteopenic subjects. \$91,823.50 Zimmer, Inc. **S.Barros (PERIO), S. Bencharit (PROS)** 8/12/2015

T. Morelli. A Prosepective, Single-Arm, Phase IV Trial to Evaluation Gintuit to Enhance Oral Soft Tissue Regeneration and Wound Healing in Adolescents. \$7,680.00. Organogenesis, Inc. 11/24/2014

S.Offenbacher. A Proposal To Create A Periodontal Medicine Ibook: Phase I. \$49,000. Colgate-Palmolive. 12/31/2014

S. Offenbacher. Genome-Wide Association Study of Periodontal Disease. \$657,857.00. National Institute of Dental and Craniofacial Research **S. Barros (PERIO)** 6/30/2014

S. Offenbacher. A Randomized Parallel Study Comparing the Interproximal Plaque and Gingivitis Effects of Three Interdental Cleaning Modalities. \$368,778.00. Philips Oral Healthcare, Inc. **S. Barros (PERIO)** 11/30/2013

S. Offenbacher. CRO-2009-GIN-01-RR Triclosan Effects on Inflammatory and Epigenetic Markers. \$59,988.00. Colgate Palmolive. **S. Barros (PERIO).** 5/21/2012

S. Offenbacher. Studies of Clinical and Biofilm Responses in Human Gingivitis. \$456,088.03. Philips Oral Healthcare, Inc. **S. Barros (PERIO)** 12/31/2011

Prosthodontics

L. Cooper. Complications with a Four-Implant Supported Dental Prosthesis in the Maxilla \$14,000. Dentsply IH AB. 10/4/2018

G. Essick. Flavor and texture in the eating experience and satiety. \$114,206.00 . North Carolina State University. 12/31/2018

L. Cooper. Exploration of the impact of Laser-mediated isotropic titanium abutment (Laser-Lok) topography on peri-implant mucosa. \$110,000.00. BioHorizons IPH, Inc. 4/25/2016

S. Bencharit. Antibiotic Use in Conjunction with Immediate Implant Placement to Replace Teeth with Apical Pathology Associated with Endodontic Origin. \$6,000. American College of Prosthodontists. 12/31/2014

L. Cooper. Dentsply Master Agreement. \$968,600.00. Dentsply IH AB. 12/31/2014

L. Cooper. Prospective, Comparative Assessment of Single-Tooth Replacement in Different Implant Systems. \$90,086.66. Astra Tech, Inc. 12/31/2014

I. De Kok. Randomized Controlled Trial Evaluating the Efficacy of Grafting the Facial Gap at Immediately Placed Implants in the Anterior Maxilla. \$15,000.00 Dentsply IH AB. **L Cooper (PROS).** 11/14/2014

L. Cooper. Inflammatory Control of Periodontal Regeneration. \$705,561.00 NIDCR. 8/31/2013

L Cooper. Molecular Effects of GDF-5 on Periodontal Cell Function in Regeneration. \$110,000.00. Medtronic, Inc. 6/26/2013

L. Cooper. Prospective Clinical Trial of Three Crown Systems Using CAD/CAM Technology. \$4,000.00 American Academy of Fixed Prosthodontics (AAFP). 6/30/2013

S. Bencharit. Effectiveness of antibiotics in immediate placement and loading of dental implants. \$25,000. American Academy of Implant Dentistry Research Foundation. 12/31/2013

S. Bencharit. Examination of Initial Wound Healing and Osseointegration of Trabecular Metal Implants (PorousTantalum Metal Implants) between Healthy and Diabetic Subjects. \$6,000. American College of Prosthodontists. 7/31/2013

S. Bencharit. ARRA-Role of Programmed Cell Death10 (PDCD10) in p38 MAP kinase activation. \$222,000. National Heart Lung and Blood Institute. 6/30/2012

L. Cooper. Genome wide array analysis of endosseous implant adherent cellular phenotypes in humans. \$17,326.00 Astra Tech, Inc. 10/31/2012

I. De Kok. A prospective clinical study of fixed four-implant supported prostheses. \$8,600.00 Astra Tech, Inc. 12/16/2012

S. Bencharit. Immediate placement and loading of dental implants into infected sites with and without antibiotic prophylaxis: an exploratory study \$6,000. American College of Prosthodontists. 12/31/2011

Table 13. Research Funding as Investigators for Faculty Actively Involved in the BSDH or MS Programs

PI, Project Title, Award Amount, Sponsor, Investigator (Program), End of Project Date
Names in **bold** indicate faculty actively involved in the BSDH or MS programs

J. Buse. North Carolina Translational & Clinical Sciences Institute (NC TraCS). \$19,065,762.00. NIH National Center for Advancing Translational Sciences (NCATS). **S. Mauriello (BS DH), S. Offenbacher (PERIO), C. Phillips (ORTH)**. 4/30/2018

J. Roush. North Carolina - LEND/AE. \$4,117,445.00. Maternal and Child Health Bureau. **M. Milano (PEDO)**. 6/30/2016

C. Trotman. STTR–Dynamic Facial-soft tissue-Analysis System (DFAS). \$360,012.00. 3dMD LLC. **C. Phillips (ORTH)**. 8/31/2015

S. Guest. Understanding the tactile perceptual structure of skin in its natural, treated, and time-changing states. \$427,263.00. Unilever UK Central Resources Limited (URPSL). **G. Essick (PROS)**. 6/30/2015

B. Wu. Developing an oral health intervention for individuals with mild dementia. \$241,780. NIH. R34 Planning Grant. **S. Maurello (BS DH)** 9/31/2015

W. Maixner. Complex Persistent Pain Conditions: Unique & Shared Pathways of Vulnerability. \$4,978,024.00. National Institute of Neurologic Disorders and Stroke. **G. Essick (PROS)**. 3/31/2015

O. Zhou. High resolution 3D dental X-ray imaging system with low dose and low cost. \$49,766.00. Xintek, Inc. **A. Mol (ORAD), E. Platin (ORAD)**. 3/25/2015

J. Beck. Periodontal Disease and Coronary Vessel Remodeling in Metabolic Syndrome Patient. \$136,634.00. Beth Israel Deaconess Medical Center. **S. Mauriello (BS DH), S. Offenbacher (PERIO)**. 7/31/2014.

R. Rozier. Prevention of Dental Caries in Early Head Start Children. \$2,791,234.00. National Institute of Dental and Craniofacial Research. **J. Lee (PEDO)**. 6/30/2014

A. Sanders. Telomere Attrition Rate and Periodontitis: A Nested Case Control Study in the ARIC Study. \$71,040.00. NIH National Institute of Dental and Craniofacial Research (NIDCR). **K. Divaris (PEDO)**. 4/30/2014

M. Runge. CTSA Non-Competing Renewal 4/30/2012. \$17,982,022.00. NIH National Center for Advancing Translational Sciences (NCATS). **C. Phillips (ORTH), S. Mauriello (DHED), S. Offenbacher (PERIO)**. 4/30/2014

R. White. Multicenter Trial of Third Molar Patient Management – Core. \$222,500.00. American Association of Oral and Maxillofacial Surgeons. **C. Phillips (ORTH)**. 12/31/2014

M. Runge. Clinical and Translational Science Award (CTSA) - TL Awards. \$9,844,597.00. National Center for Research Resources. **S. Offenbacher (PERIO)**. 4/30/2013

S. Nares. NIH National Center for Advancing Translational Sciences (NCATS). \$796,825.00. National Institute of Dental and Craniofacial Research. **E. Everett (PEDO), S. Offenbacher (PERIO)**. 7/31/2013

C. Trotman. Functional Outcomes of Cleft Lip Surgery. \$222,000.00. National Institute of Dental and Craniofacial Research. **C. Phillips (ORTH)**. 11/30/2013

J. Cai. Hispanic Community Health Study: Coordinating Center. \$2,561,705.00. National Institute of Heart, Lung, and Blood. **S. Mauriello (MS DH)**. 6/30/2013

J. Webster-Cyriaque. UNC HIV ORAL HEALTH DEMONSTRATION PROJECT. \$400,000.00. HIV/AIDS Bureau /prev: Bureau of Hlth Resources Development. **J. Lee (PEDO)**. 8/31/2012

J. Beck. Clinical Research Training in Oral Diseases for Future. \$182,446.00. National Institute of Dental and Craniofacial Research. **J. Lee (PEDO)**. 6/30/2012

P. Pereira. Long-term water sorption/solubility and degree of conversion of monomers of self-etching adhesives. \$9,694.00. 3M ESPE. **R. Walter (OPER)**. 2/29/12

J. Busby-Whitehead. Carolina Geriatric Education Center Consortium. \$1,274,000 Health Resources and Services Administration (HRSA). **S. Maurello (BS DH)** 8/01 2011.

Faculty research – either as original data-driven research or scholarly activity - generates new knowledge in the basic, applied, and clinical sciences related to the promotion of oral health and function. Research further provides an understanding of how disparity, literacy, and policy affect health and utilization through health services, health policy, and health education research. It advances curricular improvement and assessment of teaching innovations through educational research. Congruent with the status of UNC as a Research Intensive University, research productivity/scholarly activity is required of all faculty regardless of rank but the level of productivity expected is dependent on track and time allotted. Productivity can be most readily measured through two peer review mechanisms: acquisition of grant funds from external sources and publication in refereed journals recognizing that quality research can be conducted without the support of external grant awards. Scholarly activity may include publishing in electronic or digital platforms such as MedEd Portal, textbook authorship or editorship, electronic or on-line educational resource development. More information about the School of Dentistry and faculty's diverse research programs can be found at ReachNC <http://guides.lib.unc.edu/reachnc>. ReachNC is a Web portal that enables users to search, browse and find experts and assets within North Carolina higher education and research institutions.

10. Teaching Activities

A large number of the faculty appointed in the School of Dentistry have heavy teaching loads, which includes both didactic and clinical teaching, in undergraduate (DDS, DA, and BSDH) and program-specific courses (advanced education programs) within the School of Dentistry. This load can be quite substantial for some faculty. Current budget issues within the School and the University suggest that this load may not only continue but potentially become more onerous.

The distribution of didactic/seminar/and clinic teaching load for the faculty in each program is the responsibility of the chair/director of the respective faculty's home department/program. Generally, the program director is the course director for program specific courses with other program faculty providing lectures, seminars, or clinic coverage in program specific courses. The core courses and course directors are provided in the General Curriculum Overview.

Given the small number of students in each program specific course, course evaluation is primarily by feedback directly from the students to the course director or program director. Issues brought to the attention of the program director are discussed with the program faculty and, if appropriate, with the Advanced Education Program Director Committee.

In the School of Dentistry, research mentoring of DDS and graduate students is considered a teaching activity. This activity can be in the form of a MS or PhD thesis adviser or committee member or as mentor for a DDS project. All of the faculty actively engaged in the MS programs have served as thesis mentors or committee members. (Tables for participation by actively involved MS faculty are given in the program specific self-studies.)

11. Faculty Advising/Mentoring of Students

The Assistant Dean for Advanced Education/Graduate Programs office begins communication with MS students as soon as they are accepted. These communications include information about requirements, financial aid, intern permits (if appropriate), and scheduling as well as housing and daycare (if requested). Students are invited to contact by email or by phone the Graduate Registrar/Manager with questions or concerns.

A general orientation program, organized by the Assistant Dean's office, is held the last week of June for all programs that begin July 1st. All presentations given the first day of general orientation are lecture-captured for use by the programs that begin in August.

Advanced Dental Education Orientation
Friday, June 26, 2015
Lecture Hall G411, Koury Oral Health Science Building

9:00-9:30	Breakfast	
9:30-9:40	Welcome and Introductions	Dr. Ceib Phillips Assistant Dean for Graduate/Advanced Dental Education
9:40-10:10	Financial Aid	Aesha Greene Assistant Director, Financial Aid
10:10-10:40	Compliance Issues <i>HIPAA requirements</i> <i>CPR requirements</i> <i>Immunization Reviews / TB testing</i> <i>UNC EHS New Employee Orientation</i> <i>(Both will be covered under EHS)</i> <i>Medical Emergencies</i>	Foretta Davis Nurse Education Clinician, Clinical Affairs
10:40-10:50	UNC Campus Safety & Security	Sgt. Megan Howard UNC Public Safety
10:50-11:00	Graduate Honor Court	Grad. Honor Court Rep.
11:00-11:10	Connect Carolina	Koyah Rivera Graduate Registrar & Manager
11:10-11:20	NC Residency Status	Koyah Rivera Graduate Registrar & Manager
11:20-11:30	Campus Involvement	Stephanie Davis GPSF
11:30-11:40	Office of Human Resources <i>Employment Verification forms</i>	Derek Hoar Asst. Dean, Human Resources
11:40-11:50	Graduate Student Health Insurance	Dr. Ceib Phillips Assistant Dean
11:50-12:10	TimeTrex	Jennie Boone Financial Affairs
12:10-12:30	Infection Control	Jennie Brame SOD Infection Control Cmte.
12:30-1:30	Lunch Break	
1:30-1:45	Health Science Library Orientation	Kathleen McGraw Assistant Dept. Head, User Services, Health Science Library
1:45-2:30	Office of Clinical Affairs <i>Patient Charts</i> <i>Incidence Reports Informed Consent</i> <i>Risk Management</i> <i>Spanish Interpreter</i>	Phyllis Garrison Office of Clinical Affairs
2:30-3:00	Malpractice Insurance	Robin Bennington Risk Manager Treasury & Risk Mgmt. Services, UNC Chapel Hill

Bryan Heckle
Risk Manager
NC Dept. of Insurance
Lisa Weatherly
Sr. Account Executive
NC Assoc. of Insurance Agents
Monty Dise
Pres., Asset Protection Group

3:00-5:00 MS Programs Submit HR Forms and complete employment verification
(HR Office-1050, First Dental Building)
Complete Insurance Forms

Saturday, June 27, 2015

*** This will be a long session, therefore we strongly encourage you to bring
snacks/drinks with you to this Saturday training.***

BCLS Training 8:00 am-2:00 pm G405, Koury Oral Health
Sciences

Monday, June 29th

8:00-11:00 EPR Training (AEGD, PEDO, OPER) 036 Brauer Hall
Tracy William Hall
Clinical Affairs
Don Tyndall
Diagnostic Sciences

2:00-3:00 Computer Set-Up David Rankin
Programs: OPER, ORPA, ENDO, PERI, PEDO, PROS, ORAD Director, OCIS
Lab 148 Brauer Hall

3:00-5:00 EPR Training (OMSU, ENDO, ORAD) Tracy Williams
Clinical Affairs
Don Tyndall
Diagnostic Sciences

IF not in an EPR or Computer Set-up session
UNC One Card and Parking Permits (MS Programs Only)

Tuesday, June 30th

8:00-11:00 EPR Training (PERI, PROS) Tracy Williams
Clinical Affairs
Don Tyndall
Diagnostic Sciences

IF not in an EPR or Computer Set-up session
UNC One Card and Parking Permits (MS Programs Only)

The Assistant Dean and the Graduate Registrar/Manager have an open door policy to students.
The Assistant Dean provides one-on-one guidance and support for a graduate student, as

requested, in the areas of personal activities, academic pursuit, research experience and clinical training throughout the resident's educational duration at UNC. Personal concerns or issues related to a program or faculty member are confidential unless permission is given by the student for these to be discussed directly with the faculty member or program director although the Assistant Dean reserves the right to advise the Associate Dean for Education and/or the Dean. Students may be referred to an office on campus if appropriate. The Assistant Dean offers a Safe Haven office.

12. Graduate Teaching Assistants

Students in all MS programs have graduate teaching responsibilities in the DDS, Dental Assisting, and/or BSDH programs. The responsibilities vary from program to program (See Program Specific Documents) but may include grading; consult call; lecturing and small group discussion leader in DDS courses; pre-clinical lab DDS student supervision; and DDS clinic supervision. An overview of the involvement of GTAs in didactic and clinic coverage is provided in Tables 14 and 15.

Table 14. GTA Instruction Provided by MS DHED Students

Fall	Spring	Summer
DHYG 252 DHYG 265 DHYG 257 DHYG 357 DA 15	DHYG 367	DENT --PRU

Table 15. GTA Instruction by MS Clinical Specialty Students

Fall	Spring	Summer
DENT 206	DENT 112	DENT 125
DENT 305	DENT 302	DENT 126
DENT 324	DENT 213	DENT 220
DENT 105	DENT 112	DENT 232, 332
DENT 302	DENT 330/430	DENT 330/430
DENT 308	DENT 233/333/433	DENT 233/333/433
DENT 320	DENT 232, 332, 445	DXT
DENT 330/430	DXT	DENT-PRU
DENT 233/333/433	ORTHO DDS Clinic	ORTHO DDS Clinic
DENT 332, 445	PEDO DDS Clinic	PEDO DDS Clinic
ORTHO DDS Clinic	PROS DDS Clinic	PROS DDS Clinic
PEDO Clinic		BOHP Clinic

PROS DDS Clinic	Didactic	
BOHP DDS Clinic	Pre-Clinical	
	Clinical	

Individual graduate teaching assistants are evaluated by DDS/BSDH students using an on-line evaluation emailed to students if requested by the program and the evaluations (Table 16) are sent to the program director for review and feedback to students as appropriate. Several programs also use program-specific GTA teaching evaluations. BSDH students do not have any teaching responsibilities.

Table 16. Graduate Teaching Assistant Evaluation Form.

Ratings: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), or Strongly Agree (5)

This instructor demonstrated knowledge of the subject matter taught and/or clinical procedures supervised.
This instructor communicated clearly and logically.
This instructor established a comfortable learning environment.
This instructor appeared enthusiastic about teaching in the classroom and/or the clinic.
This instructor treated me and others (e.g., colleagues, patients, staff) fairly, with respect, and in a professional manner.
This instructor provided constructive feedback, and gave the feedback in an appropriate place.
This instructor started and ended on time, was available when needed, and took time to discuss cases/procedures/subject matter with me.

13. Faculty Survey

Faculty who are actively involved in the MS programs were asked to respond to a Qualtrix survey (Available on site) on the components of the programs. The response rate from faculty was 72%. All programs were represented among the 41 respondents. Representation from the programs ranged from 40 to 100% of the faculty in the program. The majority of the respondents have been faculty at UNC for more than 12 years. (Q1 = 1990; Q2 =2003; Q3 =2009). At least two-thirds of the respondents were satisfied with the MS degree requirements; student professional development; and program specific courses (Table 17). The perception of the core courses was less positive but very few faculty were dissatisfied with the core courses. Areas for future discussion and focus by the School of Dentistry and the Advanced Dental Education Program Directors' Committee are: 1) Inter-professional opportunities (43% were either dissatisfied or neutral regarding the current opportunities) and 2) GTA activities. CODA accreditation standards for the clinical specialty programs encourage or require teaching at the pre-doctoral level. However, 24% of the faculty were either

dissatisfied or neutral regarding the number of GTA assignments, the support/mentoring provided GTAs, and GTA activity as career preparation.

Table 17. UNC-CH MS Faculty Responses to “How Satisfied are You with the Following Aspects of the ADE Program with Which You are Associated”

	N	Somewhat Dissatisfied/ Dissatisfied		Neutral		Somewhat Satisfied		Satisfied	
		N	%	N	%	N	%	N	%
MS Degree Requirements	37	0	0	2	5	7	19	28	76
Student Professional Development	37	1	3	2	5	6	16	28	76
Clinical Case Presentation Seminars	37	1	3	6	16	5	13	25	68
Program Specific Courses	37	0	0	5	13	7	19	25	68
Research Presentation Opportunities	37	0	0	2	5	11	29	25	66
Oral Thesis Defense Format	37	1	3	0	0	11	30	25	67
Preparation for Board Exam	37	1	3	9	24	3	8	24	65
Research Mentoring	36	1	3	3	8	8	22	24	67
Clinical Attending Feedback	37	0	0	5	14	8	22	23	64
Program Director Feedback	36	1	2	6	17	6	17	23	64
Literature Review Seminars	37	1	3	6	16	8	22	22	59
Number of GTA Assignments	37	4	11	5	13	3	8	25	68
GTA as Career Preparation	38	2	6	7	18	7	18	22	58
Preparation for Student’s First Position	36	2	6	6	17	7	19	21	58
Career Mentoring	36	2	5	4	11	11	31	19	53
Student Ability – Critical Evaluation	38	3	8	1	3	15	39	19	50
Intra-Professional Opportunities	37	1	3	3	8	14	38	19	51
Research Core Courses	37	3	8	4	11	12	32	18	49
Support/Mentoring GTA	37	5	13	4	11	10	27	18	49
Basic Science Core Courses	37	0	0	13	35	10	27	14	38
Inter-Professional Opportunities	37	7	19	9	24	9	24	12	33

Summary of Qualitative Comments: Emergent Themes

“What changes if any would you recommend the Clinical, Research, or GTA aspects of your program? General Improvement in your Program?”

1. More time for MS research. Research funding not adequate for student projects.
2. More structured learning on evaluating existing literature and writing a literature review.
3. Restructure core courses to prepare students for changes in health care related to precision oral health care, diagnostics, and molecular medicine.

4. Enhance GTA instruction on how to teach/assess in the clinical area as preparation for the teaching of clinical dentistry
5. Increased funding for technological advancement in clinics. Greater exposure to new diagnostic and treatment technologies

What in your opinion is the greatest strength of the Program?

1. Diverse programmatic components: didactic courses, clinical training, research, teaching experience, practice management
2. Quality and dedication of faculty

D. GENERAL MS STUDENTS OVERVIEW

(The BS in Dental Hygiene Student information is described in the Dental Hygiene Program Specific Self-Study)

For the purposes of this section, MS student will refer to those students who are enrolled in an MS, MPH, or PhD program and concurrently enrolled in a clinical certificate program.

1. Admission

Admission criteria are applied equally to all applicants regardless of race, gender, color, national origin, or religion. The University and the School of Dentistry encourage minority student applications. Applicants from non-CODA accredited programs are eligible for acceptance into all MS programs. International students are required to take the TOEFL exam. All prospective students in clinical specialty programs must hold a DDS, DMD or equivalent degree from a dental school.

Applicants to the MS programs in Dental Hygiene Education, Operative Dentistry, Oral and Maxillofacial Pathology, and Oral and Maxillofacial Radiology apply directly to the University of North Carolina through Apply Yourself. Applicants to the MS programs in Endodontics, Periodontology, and Prosthodontics are required to apply first to PASS, the Postdoctoral Applications System, and applicants to Orthodontics, Pediatric Dentistry are required to apply to PASS and MATCH. Programs that use PASS (Match) recommend that applicants only apply to the UNC Graduate School after acceptance into the specialty certificate program.

All applicants for the MS programs must meet the specific deadlines and requirements provided on the UNC Graduate School website (<http://gradschool.unc.edu/programs/degreeprograms/>). This includes all transcripts since high school, curriculum vitae, GRE scores (Ortho Only), three letters of recommendation, a letter of interest, and the application fee. International applicants must submit official academic records bearing the signature of the registrar or another academic official and either a raised or ink stamp or seal of the issuing institution, a financial certificate, and receive a minimum score on

the TOEFL internet exam of 89 or a minimum of 7.5 on the IELTS. The exam score must be current (less than two years old).

All graduate students/residents enrolled in the clinical specialty programs must have an active North Carolina dental license or intern permit for clinical privileges. Those graduate students/residents who are not graduates of a CODA-accredited dental school (internationally trained dentists) must complete a pharmacology course and a simulation exam as part of their intern permit process. Such candidates must pass and complete the simulation exam within two months of their formal matriculation in the program. If a candidate does not complete the simulation exam within the two-month interval, he or she cannot advance in the clinical program and may be subject to dismissal from the program.

2. Academic Environment

The School of Dentistry strives to make students feel welcome and part of the School community. The School hosts school-wide events such as ice cream socials, a Halloween party, the Dean's Holiday Breakfast, and March Madness as well as a number of diversity enrichment and inclusiveness activities to engage students as a part of the School community. In 2015, the Dental Foundation supported a Graduate Teaching Assistant Appreciation Luncheon as a thank you for the efforts of the departing students.

The University of North Carolina provides a large number of resources that aid the student academically and personally in their transition into and while at UNC-CH. The UNC Graduate School offers a variety of professional development programs open to all students (<http://gradschool.unc.edu/student/profdev/>). For international students, UNC-CH has the Office of International Student and Scholar Services that provides advising and counseling services for foreign students and scholars; English language opportunities, a directory which includes a list of private tutors, and a variety of programs and services that promote student learning and development.

Students in the MS programs also have access to other academic resources and services on campus that foster an academic environment which is supportive and are geared to aid in student's overall professional growth and development. These resources include the following:

- The Learning Center: Offers academic services including: counseling, consulting and coaching for students
- The Writing Center: Provides writing assistance, including: feedback, advice, and instruction service for students
- Department of Disability Services: Services available include: academic assistance, note-takers, readers, interpreters, and various other accommodations based on each student's need

- Counseling & Wellness Services: Produces an array of wellness promotion and psychological services to enhance the lives of graduate students while promoting academic, personal, and social growth and development.
- The Academic Success Program for Students with LD and ADHD: Work with students who have documented learning disabilities and/or attention-deficit/hyperactivity disorders (AD/HD).
- Campus Health Services (BSDH): Offers a wide range services including: medical services, nutrition services, allergy services, and others to support the health and wellness of students
- Carolina Student Legal Services: Provides students with assistance in understanding factors to consider when seeking legal advice to determine if legal services are needed and to provide referrals or representation

In addition to the campus resources, the MS programs provide significant academic support for its students throughout the program as described in the Program specific reports.

3. Student Financial Support

The School of Dentistry provides support for MS students classified as Graduate Teaching Assistants (GTA) or Graduate Research Assistants (GRA). For Orthodontics and Pediatric Dentistry, this support includes a stipend and Graduate Student Health Insurance. Students in all of the remaining MS programs receive a stipend as prescribed by the Graduate School as sufficient to receive 50% tuition remission and Graduate Student Health Insurance. Fifty percent tuition remission reduces the non-resident tuition by 50%. Each year the Graduate School allocates tuition remission dollars to the School to cover both the PhD Curriculum in Oral Biology program and the MS programs. The amount allocated was reduced by 19% in FY2013-14 but has been stable since that reduction. The amount allocated is now substantially below the amount required to provide PhD students 100% tuition remission and MS students 50% tuition remission for their GTA activities. The Graduate School does, when possible, reallocate any tuition remission remaining budget upon request. However, if there is no remaining budget, the School must use available school funds to cover the tuition remission cost. The short-fall in tuition remission for FY2015-16 is difficult to determine because it depends on the number of students who apply for and are granted NC residency for tuition purposes. In the past, the short-fall has been as much as \$100,000. The University allows students who have established domicile in NC and maintained that domicile for a period of at least 12 months to apply for residency status for tuition purposes. Upon matriculation to an MS or PhD program, all students who are American citizens or permanent residents are strongly encouraged to apply for North Carolina residency as soon as possible to become eligible for in-state tuition. For FY 2015-16, students in the School of Dentistry were competitive in application for MS Merit Assistantship (1), a doctoral Merit Assistantship (1), a Royster Fellow (1), and a dissertation completion award (1). All four of these students are non-resident

students. The awards provide full tuition for the academic year which will reduce the short-fall for FY2015-16.

Non-resident and resident students who are classified as a GTA or GRA are also eligible for an in-state award provided by the Graduate School that further reduces the tuition due. All students must pay assessed fees. Students sponsored by the military, by an international institution, or a foreign government are not supported by the School of Dentistry.

We believe that a key to the continued success of our MS programs is to insure that students are financially supported with a stipend sufficient to qualify for tuition remission support and health care coverage that are equal to or better than other clinical specialty programs in the U.S. Currently, all of the students (Table 18) in the MS programs, except Pediatric Dentistry and Orthodontics, receive a stipend from state funds and 50% tuition remission. Pediatric Dentistry and Orthodontic students receive stipends from programmatic funds not state funds and do not receive tuition remission.

Table 18. Stipend Levels Per Year Provided to MS Students

Academic Year		PEDO*	ORTHO*
			1 st Yr ; 2 nd Yr ; 3 rd Yr
2011-12	6420	22,000	12,000; 17,300; 21,000
2012-13	6600	28,000	12,000; 17,300; 21,000
2013-14	6600	28,000	12,000; 17,300; 21,000
2014-15	6900	30,000	12,000; 17,300; 21,000
2015-16	6900	30,000	14,000; 17,632; 21,000

*No tuition remission /in state award is provided to students in these programs.

The tuition cost and fees have increased every year (Table 19). For FY2015-16, the fee increase includes a \$900/year clinical technology fee for both non-resident and resident MS students which will be returned to the SOD to support clinical technology including electronic patient record, radiology, and clinic software and hardware costs. In addition MS students will be assessed a professional tuition fee of \$600/year. which will be returned to the SOD for financial aid, equipment replacement, and faculty salaries.

Table 19. Tuition Costs and Fees Per Academic Year for Full Time Students (9 to 16 credits)

Academic Year	Non-Resident Tuition	Resident Tuition	Fees
2011-12	24,186	8378	2127.90
2012-13	25,646	9435	2114.48
2013-14	27,276	9944	2294.96
2014-15	27,626	10,294	2199.94
2015-16	28,676	11,344	3130.04

The Dental Foundation of North Carolina through the generous giving of alumni and friends of the School of Dentistry have established multiple fellowship funds for advanced education students. Each year programs are invited to nominate students for these awards. Nominations are reviewed and awards determined by a committee established by the Dental Foundation. These awards vary in amount from \$500 to \$13,000 per student. Over the past five years, 198 students have received awards that totaled more than \$1,038,000.

4. Current Students

The clinical specialty programs (Table 20) currently have 73 students enrolled in the MS degree, four certificate students who are pursuing a master’s degree in public health or a PhD in the Curriculum in Oral Biology, and 1 certificate only student with multiple previous MS degrees.

Table 20. Number of incoming students and total number of enrolled students in FY2015-16 for each program, and the Commission on Dental Accreditation (CODA) maximum

Program	# Incoming Students	Total # of Students	CODA maximum #
BSDH			
DHED	3	6	NA
ENDO	3	9	9
OPER	1	7	NA
OPATH	1	3	4
ORAD	1	5	9
ORTHO	6	18	18
PEDO	3	11*	12
PERIO	4	10	11
PROS	3	9**	10

*PEDO: 1 MPH and 2 PhD concurrently enrolled students; 1 certificate only student with previous MS degrees

**PROS: 1 PhD concurrently enrolled student

5. Race, Ethnicity, Gender, and National Diversity

Fifty-three percent of the Advanced Education students are female (Table 21). Historically, the proportion of international students in the School of Dentistry MS programs has been relatively larger than other Graduate Programs in Health Affairs. Currently, 81% of students are US permanent residents and received their undergraduate and/or professional degrees from US universities, and 19% are from international academic institutions. Of the US permanent residents, eight percent are African-American, 5% Hispanic, 55% Caucasian non-Hispanic students, and 10% Asian students.

Table 21. Number and Percentage of Students by Sex, International Status, and Ethnicity of US Residents

Program	# of Students	Female		International		Caucasian		Black		Hispanic		Asian		Other	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
DHED	6	6	100	1	17	2	33	2	33	0	0	0	0	1	17
ENDO	9	3	33	0	0	5	56	1	11	0	0	2	22	1	11
OPER	7	4	57	6	86	1	14	0	0	0	0	0	0	0	0
OPATH	3	1	33	0	0	2	67	0	0	1	33	0	0	0	0
ORAD	5	2	40	2	40	3	60	0	0	0	0	0	0	0	0
ORTHO	18	9	50	1	6	12	67	2	11	1	6	2	11	0	0
PEDO	11	8	73	1	9	10	91	0	0	0	0	0	0	0	0
PERIO	10	4	40	3	30	3	30	1	10	2	20	1	10	0	0
PROS	9	4	44	1	11	5	56	0	0	0	0	3	33	0	0
ALL	78	41	53	15	19	43	55	6	8	4	5	8	10	2	3

6. Current Research Protocols of MS Students

As described in the General Curriculum Overview, all MS students are required to have chosen a research topic, mentor, and committee by the beginning of the Spring semester of the 1st year. Table 22 lists, by MS program, the research topic, mentor and committee members for the students scheduled to graduate in 2016 and 2017 and those who graduated in 2015. Publication lists with student co-authors for the past five years are presented in the Program Specific sections.

Table 22. Research title, mentor and committee members of students who graduated in 2015 and those scheduled to graduate in 2016 and 2017

Mentors and Committee members who are actively involved in the MS programs are in bold.

DHED	First	Title	Mentor	Member
2015	D AlGheithy	The effectiveness of a self-instructional radiographic anatomy module on the improvement of test performance for dental hygiene faculty	Brame	Platin Mitchell
2015	L Chen	Sporicidal activities of three commercial disinfectant wipes for surface decontamination	Mauriello	Arnold Platin
2015	J Harmon	Protective effect of circulating omentin-1 against chronic temporomandibular disorder pain	Sanders	Essick Nackley Wilder
2015	M Decker	A qualitative pilot assessment of oral health information delivered in the medical home	Quinonez	Wilder Rozier
2016	C Collins	Parent/caregiver knowledge on oral healthcare of infants and toddlers using photo journaling	Divaris	Sams

2016	E Collins	Investigation of an association between periodontal disease and sleep disordered breathing	Essick	Moretti Brame
2016	A Hilla	Knowledge, attitude, and practice of school teachers towards oral health in Bagalur, India	White	Phillips Wilder
ENDO				
2015	E Kan	Periapical microsurgery: The effects of locally injected dexamethasone on post-operative healing	Tawil	Reside Khan
2015	B Mitchell	Making the invisible visible: A new diagnostic tool in endodontics	Khan	Frazier-Bowers Tyndall
2015	M Islambasic	Assessment of contemporary root canal file systems: Sizes, shapes and the effectiveness of 31-gauge irrigation needle in reaching the root apex	Tawil	Pettiette Ko
2016	J Parker	Cone beam computed tomography uses in clinical endodontics	Tawil	Mol Rivera
2016	A St Paul	Barriers to regenerative endodontics	Khan	Phillips Lim
2016	T Taggar	The analgesic effect of an Ibuprofen sodium formulation on odontogenic pain	Bencharit	Khan Tawil
2017	M Shallal-Ayzin	Perioperative factors for outcomes of vital pulp therapy	Khan	Tawil Haggerty
2017	T Trinh	Characterizing pulp exposure sites relating to patient centered outcomes	Khan	Tawil Haggerty
2017	W Yeung	Prognostic indicators of vital pulp therapy	Khan	Tawil
OPER				
2015	U Guha	Erosion potential of commercially available bottled drinking water, well water and vegetable juice	Donovan	Swift Ritter
2015	V Olafsson	Effect of composite type and placement technique on polymerization shrinkage stress	Donovan	Swift Boushell Ritter
2015	C Rau	The quality of fixed prosthodontic impressions: An assessment of crown and bridge impressions received at commercial laboratories	Donovan	Ritter Boushell
2016	M Atieh	Accuracy evaluation of intra-oral optical impressions: a novel approach	Duqum	Ritter Ko
2016	T Ghuman	Wear performance of monolithic dental ceramics against enamel	Donovan	Ritter Boushell
2017	E Eupre	Clinical comparison of wear characteristics of conventional and bulk fill resin composite over time	Walter	Duqum Boushell Ritter
2017	C N Ngoc	The prevalence of erosive tooth wear in GERD patients	Donovan	Donovan Ahmed
2017	L Trippe	Learning preferences of first year dental students and their performance in a pre-doctoral operative dentistry course	Boushell	Ahmed Morano
OPATH				
2015	T Peters	Explanatory variables of tobacco and	Murrah	Padilla Phillips

2016	A Davies	alcohol cessation in patients undergoing oral biopsy Differentiation of pseudoepitheliomatous hyperplasia from squamous cell carcinoma by immunohistochemical phenotyping	Padilla	Murrah Blakey
2017	S Malinchoc	Identification of patients at risk for dysplasia/carcinoma using oral exfoliative cytology for p16 and p53 expression	Murrah	Padilla

ORAD

2015	J Dunn	A Monte Carlo method to estimate radiation dose from cone beam computed tomography	Ludlow	Mol Ivanovic
2015	L Gaalaas	Ex vivo evaluation of new 2D and 3D dental imaging technology for detecting caries	Tyndall	Mol Everett
2015	R Timothy	Study design strength of evidence and level of clinical efficacy reported in the CBCT scientific literature	Mol	Ludlow Kantor
2016	B Gray	The effect of dual observers and image enhancements on proximal caries detection	Mol	Tyndall Zandona
2017	P Green	3D cone beam CT volume registration for the analysis of periodontal bone changes	Mol	Moretti Tyndall
2017	B Kurzweg	CBCT image quality assessment testing clinically relevant volume orientation and position	Mol	Ivanovic Ludlow
2017	L Zhen	Comparison of lesion features on panoramic radiographs and CBCTs: An investigation on diagnostic impact	Tyndall	Reside Padilla

ORTHO

2015	M Brown	The effectiveness and efficiency of a CAD/CAM designed orthodontic bracket system	Nguyen	Koroluk Ko
2015	T Covington	Three-dimensional evaluation of mandibular growth changes associated with herbst treatment in class II patients: Pilot study	Nguyen	Ko Zhu
2015	H Hendricks	Investigating the etiology of primary failure of eruption (PFE): A comprehensive phenotypic and genetic analysis	Frazier-Bowers	Bencharit Divaris Wright
2015	J Scherer	Bimaxillary orthognathic surgery and sleep disordered breathing outcomes	Phillips	Sheats Turvey
2015	T Al-Talib	The impact of non-nutritive sucking habits on the risk for sleep disordered breathing in children	Koroluk	Phillips Vann
2015	C Guez	A contemporary perspective on extractions in orthodontics	Ko	Proffit Lin
2016	C Gibson	Limiting factors affecting stage 1 treatment: a biomechanic perspective	Ko	Phillips Lin
2016	J Gabouski	Shear bond strength of orthodontic brackets with varying etching protocols	Koroluk	Ko Boushell
2016	J Nyquist	The association between executive	Koroluk	Phillips Stein

		function disorder and dental trauma: a pilot study		
2016	C Kirk	The effect of mandibular setback on patient's sleep behavior: a prospective study	Phillips	Essick Blakey
2016	J Pittman	Understanding the orthodontic consumer	Phillips	Bennett Koroluk
	G Senties-Ramirez	Ankylosis: clinical and molecular characterizations and implication in the development of PFE	Frazier-Bowers	Ko Wright
2016		Investigating the etiology of the short root anomaly	Frazier-Bowers	Wright Koroluk
2017	A Hill	Design and fabrication of a novel bracket for 3-D metal printing	Ko	Hershey Stevens
2017	C Jackson	Characterization of craniofacial and dentoalveolar findings in patients with marfan syndrome	Frazier-Bowers	Pimenta Vann
2017	C Johnson	Evaluating flexure of the mandible on opening as captured by intraoral digital scanners	Nguyen	Proffit Tyndall
2017	J Rich	Comparison of condylar position following orthognathic surgery in cases treated with and without virtual surgical planning	Nguyen	Koroluk Golden
2017	Y Wan B	Biomechanical factors affecting clinical efficacy of alignment and leveling	Ko	Lin Nguyen
2017	Whitecotton			
PEDO				
2015	A Boudreau	Caregiver characteristics associated with receipt of physician based preventative oral health services (PB-POHS)	Lee	Divaris Rozier Vann
2015	K Ricker	In their own words: A qualitative study of stakeholders' views of postdoctoral pediatric dentistry admissions	Divaris	Lee Guthmiller
2015		Oral health disparities among LGBT individuals in the United States: a mixed methods of study	Divaris	Lee Sanders
2016	S Schwartz	A complex look at after-hours care in pediatric dentistry: A critical component of the dental home	Bordley	Quinonez Roberts
2016	E Brecher	First-time mother's intended versus actualized child oral health behavior	Lee	Divaris Vann
2016	J Alvey	Exploring the genetic basis of early childhood caries	Divaris	Roberts Zandona
2017	J Ballantine	Factors influencing children's entry into the dental system	Lee	Divaris Lampiris
2017	B Meyer	Primary and permanent molar morbidity and disparities in the receipt of dental sealants	Vann	Divaris Zeldin
2017	B Pahel			
PERIO				
2015	A Martinez-Luna	Osteogenic activity associated with dental implant placement in patients with type 2 diabetes mellitus as compared to healthy individuals	Offenbacher	Barros DeKok

2016	A Gillone	Role of novel quorum sensing molecules (DKPs - Diketopiperazines) as activators of bacterial virulence and host response	Offenbacher	Arnold	Barros
2016	T Whitley	Prospective, comparative assessment of alveolar bone augmentation using Guidor® membrane in the bound edentulous space	J Reside	Cooper	G.Reside
2016	J Balentine	The association of viruses and periodontal pathogens in HIV positive patients with mild, moderate and severe periodontitis	Webster-Cyriaque	Morelli	Arnold
2017	E Campbell	A molecular and cellular comparison of bone inductive properties of trabecular metal v titanium among healthy and osteopenic subjects	Morelli	Offenbacher	Moretti
2017	K Reyes-Viruet	Rose of oral microbes in fetal tissues & pregnancy outcomes	Offenbacher	Moretti	Teles
2017	D Semeniuk	Prospective, comparative assessment of alveolar socket preservation using different bone grafting materials following tooth extraction	J Reside	G Reside	Cooper

PROS

2015	M Ludlow	3-dimensional analysis of alveolar changes after extraction and implant placement: A pilot study	Cooper	De Kok	Paniagua
2015	N Luedin	Epigenetic changes in peri-implantitis tissue	De Kok	Cooper	Moretti
2015	W Scruggs	Fabrication of a definitive CAD/CAM titanium abutment prior to guided surgery: A pilot study	Cooper	Sanders	Essick
2015	C Brenes	Micro-CT evaluation of the marginal fit of CAD/CAM all ceramic crowns	Duqum	Cooper	Wright
2016	A Gragg	Combination oral appliance / positive airway pressure therapy for treatment of obstructive sleep apnea in the fully edentulous patient: A pilot study	Cooper	Wright	Sanders
2016	K Tum	Anatomical landmarks used to determine occlusal planes through the analysis of cone beam computed tomography	Minsley	Cooper	Tyndall
2017	K Schlam	Split mouth comparative study of one vs two stage guided maxillary implant placement for overdentures with patient evaluation of two locator attachment systems	Cooper	Wright	DeKok Reside
2017	K Lim	3-5 year follow up study on implant supported full-arch zirconia fixed dental prostheses	Cooper	DeKok	Donovan
2017	H Murphy	Bending golden proportions to achieve esthetically successful restorations in compromised mesio-distal spacing situations in the anterior maxilla	Cooper	Donovan	Minsley
2017	A Prudenti	Comparison of two gingival displacement procedures	Ahmed	Donovan	Cooper

7. Current Student Feedback

Forty-three of the 82 students who were sent the Qualtrics survey responded (52% response rate). All programs were represented among the 43 respondents. Representation from the programs ranged from 22 to 100% of the students in the program. Of those who responded, 61% indicated their long-term career plan was private practice, 39% academics, and 11 % public health. Thirty-six percent indicated that they planned to practice or teach in NC and 64% were either undecided or were planning to leave NC. Sixty-seven percent of the respondents indicated that program reputation was very important in their choice of UNC while approximately a quarter reported that neither the SOD reputation nor location were important.

Table 23. “Importance of Items in Choosing Your Program at UNC”

N = 43 for all Items	Very / Somewhat Unimportant		Neutral		Somewhat Important		Very Important	
	N	%	N	%	N	%	N	%
Program Reputation	6	14	0	0	8	19	29	67
Faculty Recommendation	6	14	7	16	8	19	22	51
UNC SOD Reputation	10	23	3	7	12	28	18	42
Program Requirements	7	16	8	19	10	23	18	42
Peer Recommendation	6	14	8	19	10	23	19	44
Cost	8	19	8	19	11	25	16	37
Location (Chapel Hill)	11	26	8	19	14	32	10	23

Overall, the respondents were satisfied (Table 24) with the various aspects of their program. At least 80% of the respondents indicated as satisfactory: the breadth and diversity of clinical experiences and the quality of the clinical facilities, training in critical appraisal as a basis for clinical decisions, training in critical evaluation of the literature, program-specific courses, faculty engagement in the program, research mentoring and presentation opportunities, feedback on performance from full-time faculty and program director, and preparation for future career. At least 20% were dissatisfied with time in clinic, availability of staff, time for research, and intra- and inter-professional opportunities.

Table 24. “How Satisfied are You with the Following Aspects of Your Program”

N = 42 for all Items	Very / Somewhat Dissatisfied		Neutral	Somewhat Satisfied		Very Satisfied		
	N	%	N	N	%	N	%	
Feedback from Program Director	2	5	1	2	11	26	28	67
Faculty Engagement in Program	3	7	2	5	12	29	24	59
Clinical Case Presentation Seminars	3	7	7	17	9	21	23	55
Program Orientation	5	12	3	7	11	26	23	55
Feedback on Performance-Full Time Faculty	2	5	4	9	13	31	23	55
Research Presentation Opportunities	1	2	5	12	13	31	23	55
Breadth & Diversity of Clinical Experiences	3	7	3	7	14	33	22	53
Research Mentoring	5	12	2	5	13	31	22	52
Support from Research Committee	2	5	9	21	9	21	22	53
Feedback on Performance-Part-Time Faculty	2	5	13	31	6	14	21	50
Literature Review Seminars	5	12	4	9	13	31	20	48
Training in Critical Evaluation of Literature	5	12	3	7	15	36	19	45
Quality of Clinical Facilities	2	5	3	7	18	43	19	45
Quality of Research Facilities	3	7	6	14	15	36	18	43
Preparation for Board Exam(s)	4	10	8	19	11	26	19	45
Preparation for Future Career	3	7	5	12	16	38	18	43
Training in Critical Appraisal as basis for Clinical Decisions	1	2	3	7	20	48	18	43
Number of Patients Assigned	2	5	7	16	15	36	18	43
Program Specific Course Requirements	3	7	3	7	20	48	16	38
Career Mentoring	4	10	7	17	14	33	17	40
Comprehensive Exam(s)	6	14	6	14	14	34	16	38
Availability of Staff	9	21	5	12	13	31	15	36
Faculty Coverage in Clinic	7	17	6	14	15	36	14	33

Time in Clinic	9 21	7 17	12 29	14 33
Basic Science Core Course Requirements	8 19	6 14	15 36	13 31
GTA Experience as Career Preparation	3 7	10 24	17 40	12 29
Number of GTA Assignments	6 14	10 24	16 38	10 24
Diversity of GTA Assignments	5 11	12 29	13 31	12 29
Support/Mentoring for GTA Assignments	6 14	11 26	15 36	10 24
Research Requirements	5 12	10 24	17 40	10 24
Time for Research	9 21	5 12	16 38	12 29
Research Core Course Requirements	10 24	2 5	20 47	10 24
Intra-Professional Opportunities	11 26	8 19	10 24	13 31
Inter-Professional Opportunities	9 21	10 24	11 26	12 29

Summary of Qualitative Comments: Emergent Themes

“What changes would you recommend for the Clinical, Research, GTA aspects of your Program or What would you like to see improved in your Program? General Improvement in Your Program?”

1. More dental assistants / Assistance in the clinic from dental assistants in a private practice model.
2. More clinic time
3. More hands-on courses, more CAD/CAM
4. To allocate blocked out time for research without meetings, GTA responsibilities, additional clinics
5. Better introduction to GTA responsibilities – aspects of clinical teaching
6. Departmental funding for research projects

What is the greatest strength of your program?

1. Faculty “go out of their way to help in any way they can”. “Their desire to teach.”
2. Complexity/diversity of cases. Diversity of clinical experience
3. Family Environment is stronger than what I see in other programs.
4. Student Teaching and Presentation Opportunities
5. Well-rounded education
6. Large number of full/part time faculty and exposure to their clinical treatment style

In addition to the School of Dentistry survey of current students which included students scheduled to graduate in May or June of 2015, the Graduate School began collecting exit survey data in the Fall of 2010. The survey is distributed in conjunction with graduation and is

incorporated into the University graduation clearance process. The data provided in Appendix 5 represent aggregated responses from FY2010-11 through 2013-14. The aggregated data mirrors the emergent themes from both the current student and alumni Qualtrix surveys.

8. Alumni

Between FY2010-11 and FY2014-15, a total of 103 students received graduate degrees (Table 25). Approximately 11% required additional time (usually 2 to 3 months) beyond the length of the program to complete their requirements for the degree. Five percent of enrolled students withdrew prior to the completion of the program.

Table 25. Degrees Awarded between FY 2010-11 and FY 2014-15.

Program	# of Alumni	Delayed*	
		N	%
Endodontics	10	3	30
Dental Hygiene Education	14	2	13
Operative Dentistry	9	0	0
Oral & Maxillofacial Pathology	1	0	0
Oral & Maxillofacial Radiology	8	4	50
Orthodontics	24	0	0
Pediatric Dentistry	14	0	0
Periodontology	14	0	0
Prosthodontics	9	2	22

*Delayed = failure to have oral defense and thesis submission within program timeframe

9. Professional and Intellectual Contributions by MS Students

Students in our MS programs have received significant recognition for their research in the form of both local and national awards as well as external funding for their research projects. These awards include fellowship and program awards, and awards given by national or international research organizations. External awards and funding between FY 2010-11 and May 2015 as well as student publications are provided in the program specific self-studies. Orthodontics and Endodontics require students to submit research protocols to their respective professional organizations for funding unless the project is internally funded.

10. The Derek Turner Awards

Within the School of Dentistry, the most prestigious research award is the Derek Turner Award (Table 26). The Derek Turner award is given annually in honor of a former School of Dentistry researcher to one or more advanced dental education students who present the best poster or oral presentation at Dental Research and Review Day. Dental Research and Review Day is conducted each February in advance of the national meeting of the American Association of Dental Research.

Table 26. MS Turner Award Winners

Note: the number and award amount given each year varies depending on the number of competitors and available funding.

2015:

Acela Martinez (PERIO)- Osteogenic Activity Associated with Porous Tantalum Implants in Diabetic Patients (Mentor Steven Offenbacher)

Heather Hendricks (ORTHO)- Investigating the Etiology of Primary Failure of Eruption (PFE): A Phenotypic and Genetic Analysis (Mentor Sylvia Frazier-Bowers)

Lars Gaalaas (ORAD)- Developing an Intraoral Digital Tomosynthesis System Using CNT X-ray Technology: Preliminary Images (Mentor Andre Mol)

Chaitanya Puranik (OPER)- Retrospective Longitudinal Observation of Caries around Restorations by QLF (Mentor Andrea Zandona)

Li Chen (DHED)- Sporidical Activities of Three Commercial Disinfectant Wipes for Surface Decontamination (Mentor Sally Mauriello)

2014:

James Martin (ORTHO)- Access to oral health care for children in NC: Demographic and geographic trends for the pediatric, orthodontic, and general dental workforce (Mentor Ceib Phillips)

2013:

Shaoping Zhang (PERIO)- Exploration an anti-inflammatory cytokine (IL37) expression in chronically inflamed gingival biopsies (Mentor Steven Offenbacher)

Hsin Chen (ENDO)- Evaluation of a New Biomimetic Cement (Gemosil) for Use in Endodontic Pulp Therapy as Compared to the Widely-Used Mineral Trioxide Aggregate (MTA) (Mentor Ching-Chang Ko)

2012:

Crystal Cox (ORTHO)- In vivo evaluation of force decay properties of NiTi closed coil springs and comparison with matched in vitro analysis (Mentor Tung Nguyen)

Sheng Zhong (ENDO)- Lipopolysaccharide induced changes in microRNA expression (Mentor Asma Khan)

Cynthia Lambert (DHED)- Correlation of Perceived Stress and HPA Axis Reactivity in Temporomandibular Disorder: A Case Control Study (Mentor Anne Sanders)
* also Dental Hygiene ADA Dentsply winner

Jocelyn Beville (ORTHO)- Three Dimensional Analysis of Bone Anchored Maxillary Protraction in Growing Class III Patients (Mentor Lucia Cevitanes)

Steven Richardson (ENDO)- Access to Endodontic Care in North Carolina Public Health and Medicaid Settings (Mentor Ceib Phillips)

Marshall Long (PEDO)- The Age One Dental Visit: Knowledge, Attitudes, and Behaviors of North Carolina Dentists Regarding Physician Guidelines (Mentor Rocio Quinonez)

Jake Phillips (ORAD)- Comparative Dosimetry of Nomad® Pro Handheld and Wall -mounted X –ray Sources (Mentor John Ludlow)

Jonathan Reside (PERIO)- In vivo Assessment of Bone Healing Following Piezotome® Ultrasonic Instrumentation (Mentor Salvador Nares)

Kerry Dove (PEDO)- Children, Crowding, Caries: Is there a Connection? (Mentor Martha Ann Keels)

2011

Astrid Alva-Daporta (PROS)- Titanium Surface Treatment Effects on Adherent Mesenchymal Stem Cell Osteoinduction (Mentor Lyndon Cooper)

Angela Broome (ORAD)- Radiographic Image Editing of Proximal Tooth Surfaces for Competency Assessment (Mentor Andre Mol)

Jina Kang (PEDO)- The Safety of Sedation for Overweight/Obese Children in the Dental Setting (Mentor Jessica Lee)

Kervin Mack (ORTHO)- Relationship between Body Mass Index and Skeletal Maturation and Dental Development in Orthodontic Patients (Mentor Lorne Koroluk)

Romina Perri (PERIO)- Differential Expression Of Microrna Species in Obese Patients as a Potential Modifier of Periodontal Infection Pathogenesis (Mentor Steven Offenbacher)

Oliver Pin Harry (PROS)- A Prospective Clinical Study of Fixed Four-Implant Supported Prosthesis in the Edentulous Maxilla: Treatment Efficacy and 12 Months Implant Survival Rate After Prosthesis Delivery (Mentor Lyndon Cooper)

Julie Sutton (DHED)- Environmental Tobacco Smoke and Periodontitis in U.S. Non-smokers (Mentor Anne Sanders)

Dennis Weber (ORTHO)- Effectiveness and Efficiency of a Customized Versus Conventional Orthodontic Bracket System (Mentor Lorne Koroluk)

Sheng Zhong (ENDO)- MicroRNAs: Novel Players in the Regulation of Endodontic Diseases (Mentor Asma Khan)

11. Graduate Alumni Survey Results

Two hundred and sixty-two students have graduated from the nine MS programs between 2005 and 2014. Separate Quatrix surveys were sent to the 35 DHED and the 227 Clinical Specialty alumni to request feedback on the program they attended at UNC.

Table 27. Demographic characteristics of Alumni who graduated between 2005 and 2014

Program	# of Alumni	Female		INT		Cauc(C)		Black(B)		Hispanic(H)		Asian(A)	
		N	%	N	%	N	%	N	%	N	%	N	%
ENDO	30	13	43	11	37	16	53	3	10	4	13	7	23
DHED	35	32	91			27	77	3	9	2	6	3	9
OPER	20	12	60	17	85	5	25	0	0	6	30	7	35
OPATH	5	2	40	0	0	3	60	0	0	2	40	0	0
ORAD	18	11	61	12	67	8	44	0	0	2	11	8	44
ORTHO	61	16	26	1	2	49	80	6	10	2	3	3	5
PEDO	29	20	69	4	14	15	52	4	14	1	3	7	24
PERIO	32	11	34	15	47	19	59	1	3	5	16	7	22
PROS	32	16	50	20	63	13	41	0	0	6	19	11	34

12. Clinical Specialty Alumni

Responses were received from 87 alumni, a response rate of 38%. Thirty-two (39%) of the respondents received their DDS from UNC and 28 (34%) are currently practicing in NC, located in 15 counties. Currently, 14 respondents (12%) are an Associate in Practice, 23 (28%) Solo Practice, 16 (19%) Group Practice, 5 (6%) Corporate Practice, 2 (2%) Public Health, and 27 (33%) in Full-Time Academics. Seven (8%) are currently part-time faculty (at least 2 days/mo.) and 10 (12%) are adjunct faculty (less than 2 days/mo.).

Forty-one (49%) have earned Diplomate status. An additional 26 (31%) have passed Part I of their Specialty Board, and of these 15 (58%) are planning to complete board certification. Another four reported they are planning on taking Part I.

UNC-CH alumni have contributed to their profession and their communities through participation in professional organizations, teaching activities, research activities, and community service projects. In the past five years, the respondents have held office in various professional organizations: 4 (5%) UNC Alumni; 3 (4%) NC Organization; 13 (16%) Other State Organization; 13 (16%) Regional Organization; 15 (18%) National Organization; and 7 (8%) in an International Organization. Fifty-nine (71%) reported providing seminars in a School of Dentistry or community college dental hygiene/dental assisting program. Research

activities have occurred as a University/Industry collaborator (39; 47%); through use of their own clinical records (13; 16%); or as a participant in a practice-based network (7; 8%). In the past two years, 30 (36%) have acted as a peer reviewer for a journal, and 23 (28%) have participated in a community service project in NC, 25 (30%) in the US, and 8 (10%) internationally.

Overall, the alumni respondents were positive about their education at UNC-CH (Table 28), echoing the current student responses. At least 10% of respondents indicated at least some dissatisfaction with two items: availability of staff and preparation for board exam.

Table 28. “How Satisfied are You with the Following Aspects of Your Program”

	N	Somewhat Dissatisfied/ Dissatisfied		Neutral		Somewhat Satisfied		Satisfied	
		N	%	N	%	N	%	N	%
Breadth & Diversity of Clinical Experience	82	3	4	1	1	12	15	66	80
Faculty Coverage in Clinic	82	6	7	3	4	17	20	57	69
Availability of Staff	82	11	13	8	10	22	27	41	50
Research Requirements	82	3	4	3	4	16	19	60	73
Time for Research	82	4	5	7	9	19	23	52	63
Preparation to Critically Read Literature	82	4	5	4	5	17	21	57	69
Preparation to Use Scientific Evidence in Diagnosis and Treatment planning	81	1	1	3	4	10	12	67	83
Quality of Research Facilities	81	1	1	3	4	11	14	66	81
Preparation for Board Exam	81	9	11	9	11	16	20	47	58
Preparation for First Position	81	5	6	4	5	16	20	56	69

Summary Qualitative Comments – Emergent Themes:

“What changes, if any, would you recommend for the Clinical, Research, or GTA aspects of your program? General Improvement in Your Program at UNC?”

1. Training for Students Interested in Academics: Curriculum development; Leadership; Teaching Methodologies
2. More clinical faculty with primary focus on clinic coverage and practice management
3. Faster implementation of state of the art technology utilized in practice
4. Improve staffing in clinics (DA)
5. More time for research with more exposure/guidance on manuscript preparation for publication
6. Inter-disciplinary experiences More interaction with Perio-ortho-pediatrics
7. More involvement by the administration to try and keep in touch with alumni base

“What is the Greatest Strength of your program at UNC?”

1. The shared weight of representing UNC as a premier program. It was challenging and inspiring at the same time
2. Well balanced. Excellent clinical. Strong didactic. Good Research. Lots of exposure to different philosophies and techniques. Part time clinical faculty provide amazing insights. Excellent development of critical thinking skills.
3. Caring faculty who treat graduate students with a high level of respect.
4. Excellent facilities.
5. Tuition remission.

13. DHED Alumni

Nineteen (54%) of the 35 DHED alumni responded. Eleven of the respondents (61%) are planning to obtain a higher degree in the future. Since graduation, 53% of the DHED alumni have presented at a professional meeting; 42% have published a paper in a peer reviewed journal; 37% have mentored students in research; 32% have conducted original research; and 32% have held or hold a leadership position in a professional organization. Eighty percent of the respondents agreed that the DHED program had adequately prepared them for an academic position and that the research component had been valuable to their career.

Summary of Qualitative Comments – Emergent Themes:

What changes would you recommend for the Clinical, Research, or GTA aspects of your program? General Improvement in the Program?

1. More exposure to clinical and basic science research
2. More classes in educational methodology, student management, academic life
3. Lessen GTA load with more mentorship from faculty at the beginning of GTA responsibilities

What was the Greatest Strength of Your Program?

1. Ability to interact with dental assisting, hygiene, dental and dental grad students and faculty on a one-on-one basis as opposed to an online program
2. Opportunities while in school to build relationships and your career as an educator (i.e., internship, thesis, research committee, GTA).
3. Diversity of teaching activities: didactic, pre-clinical, clinical.
4. Completing original research and preparing a manuscript for publication was the greatest strength. I felt like I was really able to step into the research aspect of my position as a result.

E. LEADERSHIP AND SUPPORT

This section details the governance and leadership, support units, and facilities available at the School of Dentistry. The School of Dentistry provides the space, the infrastructure, and significant financial support to the BSDH and MS programs.

1. Leadership – School of Dentistry

The BS in Dental Hygiene program and the MS programs are governed by the policies of the School of Dentistry <http://www.dentistry.unc.edu/wp-content/uploads/2014/08/generalacademicpolicies.pdf?d20904> . The BS Dental Hygiene program also is governed by the policies of the Undergraduate School and the MS programs by the Graduate School of the University of North Carolina.

Dean of Dental School: The Dean of the School of Dentistry is Dr. Jane Weintraub. Dr. Weintraub came to the UNC School of Dentistry from the University of California at San Francisco, having served as faculty there for 15 years. She has a strong research background. At UCSF, she was the Principal Investigator for a 27 million dollar grant from NIDCR. Dr. Weintraub previously served as a faculty member at the UNC SOD for 7 years in the Department of Dental Ecology. Dr. Weintraub was appointed on July 1, 2011 for a five-year term.

Associate Dean for Education: Dr. Ed Swift is responsible for all academic programs in the School of Dentistry. Dr. Swift was appointed as Associate Dean for Education in 2014. His academic appointment is in the Department of Operative Dentistry.

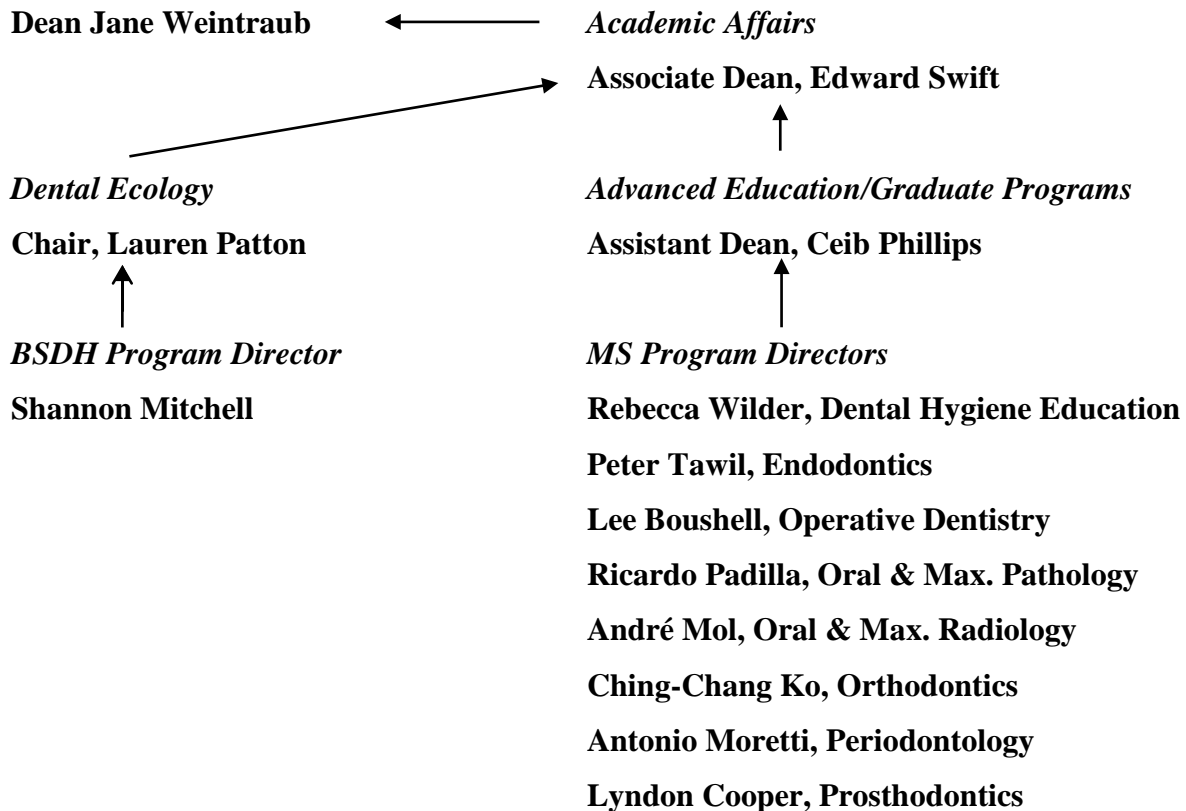
Assistant Dean for Advanced Education & Graduate Programs: Dr. Ceib Phillips is responsible for all the advanced education programs, including the MS and PhD, at the School of Dentistry, and as such provides academic and administrative support for these programs. The Assistant Dean provides one-on-one guidance and support for graduate students, as requested by a student or a program director, in the areas of personal activities, academic pursuit, research experience and clinical training throughout the resident's educational duration at UNC. Personal concerns or issues related to a program or faculty member are confidential unless permission is given by the student for these to be discussed directly with the faculty member or program director, although the Assistant Dean reserves the right to advise the Associate Dean for Education and/or the Dean. Students may be referred to an office on

campus if appropriate. The Assistant Dean offers a Safe Haven office. Dr. Phillips reports to Dr. Swift. Her academic appointment is in the Department of Orthodontics.

Associate Dean for Clinical Affairs: Dr. Darryn Weinstein is responsible for overseeing patient care within the School Dentistry. His academic appointment is in the Department of Pediatric Dentistry.

Associate Dean for Research: Dr. Eric Everett is responsible for oversight of grant management activities and research space. His academic appointment is in the Department of Pediatric Dentistry.

MS Program Directors: The Program Directors are responsible for the internal organization of each program. Major changes in the internal organization of a program must have the approval of the Dean of the Dental School and the Commission on Dental Accreditation (if appropriate). The MS Program Director is a member of the Advanced Education Program Directors Committee, chaired by the Assistant Dean for Advanced Education/Graduate Programs, which meets monthly to discuss issues that affect advanced education programs in the School of Dentistry and to make recommendations to the Associate Dean for Education and the Dean.



2. Administrative Support

The Graduate Program Coordinator (Registrar) in Academic Affairs, Ms. Koyah Rivera, registers students for classes, enters course grades, acts as a liaison between the Graduate School, International Scholar and Student Services Office and other entities on campus, supports student personnel actions, assists program directors with PASS, Apply Yourself, and ConnectCarolina issues, is on the University Residency appeal committee, and helps provide other logistical support as needed.

The Office of Academic Affairs maintains the academic calendar and room reservation system.

The Office of Clinical Affairs manages patient admissions for DDS and BSDH programs, quality assurance/risk management, patient records management, instrument management, and central sterilization.

The Human Resources unit, headed by Derek Hoar, the Assistant Dean for Human Resources, handles employment appointments, insurance, and personnel support for our students.

Office of Support Services provides assistance in maintenance of equipment and furnishings, moving and installation of furniture and equipment, and classroom equipment maintenance. Support services are also responsible for mail services, parking and transportation, and building renovation.

The Oral and Craniofacial Health Sciences unit provides pre- and post-award grant management and IRB preparation assistance. The provide assistance in assembling and submitting grant applications, handle accounting of grant funds for laboratories and core facilities housed in the School of Dentistry, as well as a wide variety of business functions including shipping and receiving, overseeing equipment and building maintenance, travel arrangements and reimbursement, etc. The OCHS also provides partial salary support for a faculty member in the Department of Biostatistics to assist faculty in the preparation of grant applications and the analysis of data from externally funded projects.

Additional support for the School of Dentistry research effort of students and faculty who do not have external funding is provided by the Data Coordinating & Statistical Consulting Laboratory (DCSC). The DCSC provides assistance with design and investigational strategies, statistical analysis plans, database and statistical programming, statistical analysis, and verbal and/or written interpretations of statistical analyses.

3. Technical Support

School of Dentistry computer and IT support is provided by the Office of Computing and Information Systems (OCIS), as well as the UNC Information Technology Services. OCIS

provides network and computer support for the faculty, staff, and students of the UNC School of Dentistry. This unit also develops and supports computer applications for the School's administration, departments, and patient care facilities. High-speed Internet access, both wired and wireless, is excellent throughout campus. The UNC Office of Information Systems provides servers and data backup as well as general computer support.

The Center for Educational Development and Informatics provides technical support for classroom and AV assistance, and a visual art specialist as a photographer/videographer. This unit also provides support to the program faculty and graduate students for course development and evaluations, oral presentations, and use of educational and classroom technology.

4. Facilities

The MS and BSDH programs are administratively based in the UNC-SOD complex. The School of Dentistry currently consists of four buildings: First Dental Building, Brauer Hall, Tarrson Hall, and the new Koury Oral Health Sciences Building which opened in the spring of 2012. This 216,000 square feet (sf) of state-of-the-art educational, research and office and administrative space contains 84,238sf of research space with modern laboratory, office, seminar, and core support facilities. With the addition of this facility to our existing structure, UNC School of Dentistry is now one of the largest dental education complexes in the country. The high-tech classrooms, auditoriums, and study rooms and modular research space for our oral health scientists will allow us to continue leading the way in dental education, research and patient care. All other buildings are directly accessible from Koury.

First Dental Building (formerly called Old Dental) houses office space, clinical facilities, a pathology lab, and two lecture halls utilized by the Dental Hygiene Program. First Dental Building is connected to Brauer Hall by a breezeway. Brauer Hall houses graduate dental programs and clinics, office space, one lecture hall and two student laboratories. Tarrson Hall is also connected to Brauer Hall. Tarrson Hall houses offices and the Dental Faculty Practice and main DDS clinical facilities for the School of Dentistry. A patient drop off area is located through the main entrance of Brauer Hall, which allows easy access to clinical areas in Tarrson Hall. Patient parking is located in the UNC Hospitals Patient Parking Decks. Wheelchair accessible ramps are located at the entrance to Tarrson Hall as well as at the patient drop-off area at the entrance of Brauer Hall.

The School of Dentistry is located within the UNC Health Affairs campus, which includes the Schools of Dentistry, Medicine, Pharmacy, Nursing, and Public Health, which is located next to the undergraduate UNC-CH campus. Within the Research Triangle area is Duke University, approximately seven miles from the UNC-CH campus, which is an internationally recognized leader in biomedical research. North Carolina State University, with internationally recognized Schools of Engineering and Veterinary Sciences, is located within 35 miles of UNC-CH. In

addition, Chapel Hill is close to the Research Triangle Park (RTP), which is the second largest research and development park in the United States and includes firms known as world leaders in medical research, pharmaceuticals, scientific equipment, and information technology. The RTP contains a strong concentration of more than 80 biotechnology and life sciences companies, including multinational biomedical research corporations such as GlaxoSmithKline, Becton-Dickenson, Quintiles, Cisco Systems, and the Research Triangle Institute (RTI). RTP also houses the research facilities for the Environmental Protection Agency (EPA) the National Institute for Environmental Health Sciences (NIEHS), the National Toxicology Program (NTP), and the National Institute of Statistical Sciences (NISS).

5. Library Holdings

The UNC Health Sciences Library, which is adjacent to the School of Dentistry, houses collections for the schools of Dentistry, Medicine, Nursing, Pharmacy, and Public Health and for UNC Hospitals. Materials from all 16 on-campus libraries, including electronically accessed sources, are openly available to School of Dentistry affiliates. To facilitate use of materials from all collections, the campus libraries operate a delivery service to move books between campus libraries upon a request from a user. The Health Sciences Library also offers Interlibrary Loan services so that faculty, students and staff in Health Affairs schools can obtain copies of books and journal articles not owned by any campus library. In addition, the library supports the School of Dentistry through a Dentistry Liaison. This person provides support to both faculty and students. The teaching program is enhanced through class seminars on EndNote, citing and writing, data and statistics, evidence-based practice, RefWorks, etc. Research support is provided through systematic reviews.

The libraries of Duke University, North Carolina Central University, North Carolina State University, and the University of North Carolina at Chapel Hill participate in a cooperative library lending agreement. Faculty members, currently enrolled students, administration officials, and members of the university staffs may obtain borrowing privileges at the participating libraries.

The Health Sciences Library homepage presents a collection of core electronic resources on the Dentistry Reference web page, which is also linked from the School of Dentistry website. This page features links to the following bibliographic reference databases: PubMed, CINAHL, Cochrane Library, EMBASE, and ISI Web of Science. Many other databases are available via the library's More Databases webpage. All library databases provide links from the article citation to the library's subscribed journals. The Dentistry Reference webpage also links to specialized clinical information tools: VisualDx, FirstConsult, and UpToDate (on-campus only). Drug information is provided via Facts & Comparisons 4.0, Lexi-Comp Online, Micromedex (on-campus only), and Natural Medicines Comprehensive Database. Most electronic resources are available both on and off campus to current faculty, students, and staff.

F. The Future

The UNC Advanced Education programs currently have a rich applicant pool and remarkably talented residents who work and learn together. The faculty is outstanding and there is a positive, collegial relationship between faculty and residents. The history of research accomplishment, the strong didactic component, and the positive interdepartmental interactions suggest that the present educational environment is strong. As such, the future should focus on enhancing the presently attained goal of balanced clinical, didactic, and research programs.

1. Program Size

The School of Dentistry anticipates a stable enrollment of graduate students for the next five to ten years. Additions to the UNC program by the inclusion of Advanced Education students seeking dual training at the PhD level should be considered. Currently, there is one student who is expected to receive his certificate in Pediatric Dentistry and PhD in the Curriculum in Oral Biology in May 2016 and one student who is just starting a certificate in Prosthodontics and PhD in Oral Biology. However, such a program requires at least five years and, with the current level of student debt, is unlikely to be successful without substantial tuition and stipend support. Such a program would also require flexibility from the clinical programs.

2. Student Resources

The availability of dental assistants for optimal patient care was noted as an issue in the faculty, student, and alumni surveys. Another challenge is to acquire and continually update a functional digital dental laboratory and provide other technology (lasers, 3D printers, Cad-Cam) currently being used in practice that would enable learning and best prepare our students for the future. A resource plan should be developed and appropriately funded.

3. Curricular Changes

The self-study has focused attention on several aspects of the curriculum that will need to be addressed by the Office of Academic Affairs and the Advanced Education Program Directors Committee. These include:

1. The integration of inter-professional activities in the curriculum, particularly with pharmacy, nursing, and social work. We anticipate initiating inclusion of joint presentations in the fall of 2015 in the Interdisciplinary Course.
2. The development of a general Graduate Teaching Assistant orientation. We will be contacting the Center for Faculty Excellence to request their assistance. The Center currently offers GTA workshops. Unfortunately, these workshops are not focused on clinical teaching and are generally not compatible with Advanced Education schedules.

4. Quality Improvement of Graduate Education

Academic Affairs, particularly the Assistant Dean's Office for Advanced Education & Graduate Programs, will continue to assess ways to increase interactions among specialties through formal coursework, shared research responsibilities, and informal mechanisms. We believe that students should be continuously exposed to issues beyond the technical scope of dentistry such as social issues of health care, health care policy, ethical issues confronting medicine and dentistry, and the changing business and economic landscape of the profession. The inclusion of these areas should enhance, not detract from, the current educational environment. Broadening the scope of the Interdisciplinary Course held on Wednesdays from 5:15–7:00pm may be one option.

5. Student Qualifications

The Advanced Education Programs are challenged by recent changes in reporting requirements established by CODA. Only Pass/Fail grades on the national boards are provided at this time, and many dental schools use a pass/fail system. Currently, only the orthodontic program requires the GRE in the application process as a quantitative measure. Programs will need to decide whether quantitative measures, such as the GRE, are essential for assessing student qualifications.

6. Racial, Ethnic, and Gender Diversity in the Graduate Program

The graduate programs are quite diverse with respect to gender, ethnic backgrounds, and nationalities, and the applicant pool for the UNC-CH programs is quite large, as evidenced by the ratio of PASS applicants who apply to UNC programs. The underrepresented minority presence is lower than desired given the population demographics of NC but is quite similar to the UNC-enrolled student diversity statistics for graduate and professional students (Fall 2014): UNC: 7% African-American, SOD 8%; UNC: 6% Hispanic, SOD 5%; UNC: 12% Asian, SOD 10%. The School of Dentistry graduate programs currently have no resources to attract or recruit underrepresented minority students from dental schools in the Southeast. The Advanced Education Program Directors Committee will reach out to UNC Associate Dean Lerea to ask for assistance in developing outreach initiatives.

7. Quality of Mentoring

The School of Dentistry has a strong faculty-to-faculty mentoring program, and the program has been expanded to include associate professors in any track, upon request. Student mentoring by faculty in research and program-specific activities was viewed positively by both current students and alumni. One area of mentoring that should be addressed in the future is a more formal Graduate Teaching Assistant program to prepare graduate students as they assume their responsibilities as teachers with the dental and allied health students.