

State University System of Florida Board of Governors

Request to Offer a Doctor of Dental Medicine Degree

University of Central Florida

University Submitting Proposal

Fall 2014, classes begin

Proposed Implementation Term and
Year

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.

May 26, 2011

Date Approved by the University Board of
Trustees

John C. Hill
President

8/6/11
Date

[Signature]
Signature of Chair, Board of
Trustees

8/6/11
Date

[Signature]
Vice President for Academic
Affairs

8-6-11
Date

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In the tables below, provide headcount and full-time equivalent (FTE) student estimates of majors for the planning years, and year one of enrollment through full enrollment. Headcount and FTE estimates should be identical to those in Table 1 Appendix A. Calculate a cost per FTE for each year of enrollment (Education and General Funding divided by FTE). Indicate the program costs for planning years and the first through fifth, eighth and tenth years of implementation. Include capital costs for new facilities in the appropriate column and code them as "S" for state funds and "N" for non-state funding.

Implementation Timeframe	Projected Student Enrollment			Projected Program Costs		
	Head- count	FTE	Cost per FTE (E&G/ FTE)	Education & General Funding+	Other Funds++ (Total expenses, including facilities investments)	Facilities Investments+++ S= State N = Non-State (Operating Lease beginning in First Year)
Planning Year 1				\$0	\$4,302,123	N=\$1,050,000
Planning Year 2				\$0	\$5,534,703	N=\$1,050,000
Planning Year 3				\$0	\$8,779,193	N=\$1,050,000
First Year	60	60	\$0	\$0	\$27,031,348	N=\$3,748,959
Second Year	159	159	\$0	\$0	\$19,789,275	N=\$3,823,939
Third Year	257	257	\$0	\$0	\$22,594,984	N=\$3,900,418
Fourth Year	355	355	\$0	\$0	\$27,109,998	N=\$3,978,426
Fifth Year	394	394	\$0	\$0	\$28,233,021	N=\$4,057,995
Sixth Year	394	394	\$0	\$0	\$29,180,344	N=\$4,139,155
Seventh Year	394	394	\$0	\$0	\$29,528,199	N=\$4,221,938
Eighth Year	394	394	\$0	\$0	\$31,348,477	N=\$4,306,377
Ninth Year	394	394	\$0	\$0	\$30,691,738	N=\$4,392,505
Tenth Year	394	394	\$0	\$0	\$31,292,984	N=\$4,480,355

+ "E&G Funds" includes all Education and General funds but no tuition authority dollars.

++ "Other Funds" are non-state dollars (ex. private contributions, clinical, university auxiliaries, grants and contracts, etc.). Other funds for UCF include a private contribution of \$10 million, contracts and grants, tuition and fees, clinical revenue, and university support of start-up costs.

+++ "Facilities Investments" must show source of funds: S=state and N= non-state funds. The planning years include the cost of renting space until the building is completed. The remaining years include an operating lease with a private developer who will construct a dental education building. The higher cost of an operating lease was selected to stress the business plan and ensure that the revenues generated from operating the dental college were sufficient to cover its costs.

INTRODUCTION

I. Program Description and Relationship to System-Level Goals

- A. Describe the degree program under consideration, including overall purpose; emphases, including concentrations, tracks, or specializations; and total number of credit or contact hours.**

Overview

The University of Central Florida proposes the Doctor of Dental Medicine (D.M.D.) program to be offered in a new College of Dental Medicine to start in fall 2014. This program will be an integral part of the UCF Health Sciences Campus at Lake Nona. This will be a four-year program admitting its first class of 60 students in 2014 and reaching a full entering class size of 100 students in the second year and thereafter, for a total enrollment of about 394 students (assuming a 98 percent retention rate after the first year). A new Dental Education building constructed without use of state funds will be located adjacent to the UCF College of Medicine Medical Education building. A 200-chair Primary Dental Care Clinic located in the new building and service learning projects in the community will be part of the program, where students under the supervision of faculty members will develop their skills and will provide dental care to the underserved and others. The program and the accompanying college will not require new state appropriations to support the educational program. The college will partner with the Orlando Veterans Affairs Medical Center, Nemours Children's Hospital, and regional health clinics for training and care. A donor has pledged \$10 million to support the college. The college operations will be supported primarily by tuition (\$55-60,000 per student per year) and clinical practice revenues. The dental college will provide synergy with the medical school and will share some facilities already built for the medical students including the Anatomy Lab, Microscopy Lab, library, student study space, and others. The College of Dental Medicine is an integral part of the plan to build a complete academic health science center that is part of the emerging medical city at Lake Nona.

The University of Central Florida is requesting a dental program at this time because it is part of the long term plan for the Lake Nona campus and a \$10 million gift has been pledged. If the opportunity is delayed, it is likely that a private dental school will be developed at Lake Nona and the opportunity to fulfill the strategic plan will be lost. The university believes that the synergies with the UCF College of Medicine, the long range plans for the UCF Health Sciences Center at Lake Nona, and the clinical and research activities associated with a public university will economically benefit Central Florida and the state while helping to meet the oral health care needs of Floridians.

The four-year, 5,000 hour, 160-credit-hour D.M.D. degree program will be clinically based. The UCF dental degree program is expected to generate about 98 graduates per year after the program is fully operational. Students will be expected to achieve competencies expected of successful, independent entry-level general dental practitioners. Clinical education will focus on Primary Dental Care--the knowledge, skills, and experience needed to develop competency in patient assessment, diagnosis, treatment planning, and dental therapy. The D.M.D. degree program will complement the university's other pre-professional and health-related degree programs (e.g., M.D., D.N.P., D.P.T., M.S.N.) and help UCF build a public and comprehensive health sciences campus.

Purpose of Establishing the Doctor of Dental Medicine Degree Program and Building the UCF College of Dental Medicine

UCF is firmly committed to the economic development associated with the UCF Health Sciences Campus at Lake Nona. The UCF College of Medicine M.D. degree program and other health professions, such as the D.M.D. degree program, combined with research laboratories and the growing life sciences cluster in Lake Nona are expected to create an additional 30,000 jobs and \$7.6 billion in annual economic activity by 2017 (2008, Arduin, Laffer and Moore Econometrics). The Lake Nona campus is currently home to the UCF College of Medicine M.D. degree program and laboratory space associated with its Burnett School of Biomedical Sciences. Future plans are for the College of Nursing and other existing health professions from the main campus to move to the Lake Nona campus. Already within the growing medical city, the Sanford-Burnham Medical Research Institute opened in 2009, the MD Anderson Cancer Center Orlando Cancer Research Institute moved into the College of Medicine Burnett Biomedical Sciences building in 2009, the Orlando Veterans Affairs Medical Center is expected to open in 2012, the Nemours Children's Hospital is expected to open in 2012, and other hospitals are planned within walking distance of the UCF campus. The University of Florida Research and Academic Center at Lake Nona that includes the Orlando campus of the UF College of Pharmacy is expected to open in 2012.

The planned UCF Doctor of Dental Medicine degree program will be a welcome addition to this concentration of medically-related facilities and degree programs and will contribute to the overall economic development in Central Florida. The dental program and its students and faculty will create a richer educational experience for medical, nursing, and dental students through interprofessional education. The dental degree program will bring clinical dental education and research to the health sciences campus and needed dental care to local citizens, especially those who are economically disadvantaged. The dental college will provide more opportunities for faculty members, clinicians, and scientists to interact and design clinical trials and conduct biomedical research with a dental focus, thus increasing UCF research opportunities. Central Florida, and in particular the growing medical city in Lake Nona, is an ideal location in the state to establish a new doctoral program in dental medicine and its accompanying College of Dental Medicine because the synergies between the health and medically-related fields of this large metropolitan region will increase the economic development in ways that would be impossible elsewhere.

It is estimated that the annual economic impact (gross domestic benefit from operations) of the dental college will be more than \$68.5 million. The one-time initial economic impact of the construction and associated capital purchases is estimated at \$72.73 million. The impact is the result of direct, indirect, and induced effects of construction on the region's economy. (Sean Snaith, *Dental School Impact Study*, April 2011; see more detail in Appendix D) These estimates do not include research and clinical productivity by the students and faculty and this contribution could be considerable over time.

UCF has received a pledge for a \$10 million donation (see pledge form in Appendix E1) to assist in the initial development of the dental program and college. During the three-year planning period, new facilities will be constructed, the curriculum will be designed, faculty and staff will be hired, and the program will achieve Initial Accreditation from the Commission on Dental Accreditation (CODA). A new Dental Education building will support the program. The current business plan assumes the use of an operating lease with a private developer who will construct a Dental Education building. The D.M.D. degree

program will be self-funded primarily through tuition and fees and clinical revenue as a market-rate program. UCF intends to apply for approval of the market-rate program in 2012 once approval is obtained for the program by the Board of Governors in 2011. This means that UCF is not requesting state appropriations to start or operate this dental education program.

The rapid and constant growth in the state's need for health care workers, including dentists, nurses, physician assistants, and therapists (especially among the economically disadvantaged) needs to be addressed. In Florida, there are currently 224 dental care health professional shortage areas (HPSAs) (see the *HRSA Data Warehouse* <http://datawarehouse.hrsa.gov/hpsadetail.aspx> accessed April 28, 2011). Florida ranks third in the nation in HPSAs, with only Texas and California having a higher number of shortage areas. A significant number of these shortage areas are found in the surrounding communities in Central Florida. Florida has an underserved population without access to affordable dental care. According to an April 25, 2011, *Palm Beach Post* article "Florida ranks last in nation in providing dental care for poor kids." The planned 200-chair Primary Dental Care Clinic that is part of the educational program for the proposed dental college will help meet this need.

One of the problems with dental care in Florida is that it is uneven, particularly sparse in rural areas and unavailable to low income populations. In Florida, Dr. R.E. LeMon in a recent study for the SUS Board of Governors, entitled *Dental Education and Dental Care: Eight Contextual Observations for Future Planning*, on March 1, 2011, stated that Florida has about 200 Dental Health Professional Shortage Areas and that some of the worst disparities are for African-American populations. He also noted that there is a growing shortage of dental faculty and dental researchers.

Because dentists generally practice near where they choose to live, increasing the number of dentists will not necessarily address the rural access problem without focused recruiting of students from rural areas or other initiatives (e.g., loan forgiveness) to incent dentists to practice in those areas. The UCF College of Medicine has worked with rural high school students from an AHEC sponsored program through NOVA Southeastern University to influence them toward medical careers. Similar focused activities can be oriented toward dental careers.

The Pew Center on the States (*The Cost of Delay: State Dental Policies Fail One in Five Children*, February 2010) reported that roughly 4,500 new dentists graduated from the United States' 56 dental schools, but it would take more than 6,600 dentists choosing to practice in dental HPSAs to provide care for those 30 million people who are underserved. More than 10 percent of those are needed in Florida alone, where it would take at least 751 new dentists to close the access gap for the underserved population alone. This number will be even higher now due to the ongoing increase in the underserved populations. The shortage was further confirmed by the Florida Department of Health in its 2008 study where it was reported that, due to the closing of dental schools in the 1980s and decreases in class sizes in the 1980s and 1990s, the state is approaching a period when "[t]he number of dentists is decreasing as more dentists retire than graduate." (Florida Department of Health, 2008, *The State of Florida's Oral Health*)

With respect to access for low income populations, the UCF College of Dental Medicine will serve the State of Florida and its community by the following:

- Offering affordable dental care to the underserved population and others in its 200-chair Primary Dental Care Clinic where dental students develop their skills under the supervision of experienced dental faculty members
- Requiring students to volunteer their services in community clinics to satisfy a service learning experience

The American Dental Education Association indicates that between the years 2014 and 2027 more dentists will leave the workforce than enter it. However, the recent *Report on the 2009-2010 Workforce Survey of Dentists* by the Florida Department of Health that included the results of an extensive survey of dentists concluded that new dentists at the current licensing rate will more than offset the attrition associated with retirement. However, the report did not consider any mortality effects in its workforce projections and noted that it did not consider population growth or any changes in service levels. A separate study at UCF (Appendix F) using the same workforce survey data shows that the demand for new dentists, which considers retention, mortality, and population growth, will range from an average of 353 to 455 dentists per year in 2011-2015 to 360 to 489 in 2045-2050 depending on the state's success in delivering dental care to some of the estimated 6 million Floridians who currently do not see a dentist. The projected demand exceeds the 150 dentists currently produced by Florida dental schools who practice in Florida.

Admission statistics show that numerous qualified applicants seeking admission to dental schools nationwide are not admitted because of the limited number of seats available. Only 39.6 percent of those who apply to dental schools nationwide were admitted in 2010. (*ADEA Official Guide to Dental Schools*, 2011, pg. 14). For fall 2009, 5,089 students were admitted from a total of 12,202 applicants (41.7%) who each applied to an average of nine dental schools.

Over 6,400 applications were submitted by 612 Florida residents to dental schools nationwide in 2009-2010. Of the 612 residents who applied, only 233 were matriculated at a dental school and only 125 of these went to a Florida dental school. Sixty-two percent of Florida residents who applied to dental school were not accepted into any dental school.

The number of applications to the dental schools in Florida was over 4,800 while fewer than 200 students were newly enrolled last year. There is a huge demand among potential students for dental education and a lost opportunity to address the dental health care professional shortage since 88 percent of University of Florida and 80 percent of the NOVA Southeastern University dental school graduates remain in the state after dental training.

The Doctor of Dental Medicine Program Overview

The proposed four-year degree program will start with a class of 60 students in fall 2014 and enroll 100 students the following year and thereafter. UCF will enroll a full complement of 394 students (assuming a two percent attrition after the first year) in 2018. The course of study will adhere to the Commission on Dental Accreditation standards of accreditation. Students will be expected to achieve competencies expected of successful, independent entry-level general dental practitioners. Clinical education, with students and faculty organized in Clinical Practice Teams (CPTs), will focus on Primary Dental Care--the knowledge, skills, and experience needed to develop competency in patient assessment, diagnosis, treatment planning, and dental therapy.

Student learning experiences will be organized around the following four themes:

1. Biomedical Foundations
2. Clinical Foundations
3. Dental Public Health and Professional Practice

4. Primary Dental Care

Each theme will be conducted vertically across all four years of the program to provide the students with an integrative learning experience.

Some planned special areas of curricular emphasis include the following:

- Educate general dentists to provide primary oral health care to the public focusing on delivery of dental care in the context of patients' overall health.
- Prepare D.M.D. program graduates to function as primary care providers who are sensitive to the overall health care needs of the community.
- Prepare students who can think independently and work as team members of health care groups, including the following five other unique features designed for this purpose:
 - Sensitize students to the social and cultural factors in dental practice through instruction and required service learning projects in the community.
 - Promote effective team membership with other professionals in delivering health care.
 - Teach prevention and promote health and wellness.
 - Teach evidence-based practice and critical appraisal of the biomedical literature.
 - Participate in Clinical Practice Teams within the 200-chair Primary Dental Care Clinic which is organized to emulate a general dentistry group practice.

UCF's existing strengths in computer science, simulation and training, and digital media will enhance the opportunity of developing and using new teaching tools that will help create dentists who assess, diagnose, and treat patients appropriately. The UCF College of Medicine has already capitalized on those strengths to create nationally recognized award winning educational media.

The development of a Doctor of Dental Medicine degree program and its accompanying College of Dental Medicine is aligned with the UCF strategic plan. The dental program is consistent with the university's mission as "a public multi-campus, metropolitan research university that stands for opportunity." As described later in this proposal, the dental program will support the following university's goals:

- Achieve international prominence in key programs of graduate study and research
- Provide international focus to our curricula and research programs
- Become more inclusive and diverse
- Be America's leading partnership university

The development of a College of Dental Medicine supports the university's goal of being America's partnership university. Partnerships define UCF as an institution and will also define its fundamental decisions of how a College of Dental Medicine should function to partner with and benefit the community and provide high-quality dental education. There have already been partnership discussions with the leadership of the Orlando Veterans Affairs Medical Center and various clinics in Central Florida (see Appendix E2 for letters of support). The Orlando Veterans Affairs Medical Center, for example, will be providing dental services in its new center in Lake Nona and is interested in developing a partnership with the new dental college.

Summary

The development of the UCF College of Dental Medicine will enhance the economic growth in Florida, increase research opportunities, and enhance the interprofessional education

opportunities on the UCF Health Sciences Campus at Lake Nona. The program will help provide for more access to dental health care locally. Health care shortages are more evident in areas that experience large population growth, have underrepresented populations, and an aging population. This characterizes the Central Florida region, which has many health care shortage areas. A dental program at the University of Central Florida will enhance access to quality health care in Central Florida for its citizens.

There is a sufficient pool of qualified applicants who are currently unable to achieve admission to a dental school. The UCF College of Dental Medicine will provide opportunities for those applicants.

UCF has already recruited leading researchers in medicine, biomedical sciences, nanosciences, photonics and optics, engineering, computer sciences, digital media, and simulation and training. A strong foundation of medical instruction and biomedical research and instruction is already in place that will be leveraged to reduce the costs associated with establishing a dental program at UCF. Existing resources in the College of Medicine (e.g., Anatomy Lab and library) will be used to support the dental program. In addition, a pledge for a gift of \$10 million in private funds has been made to start the program.

The dental program will be self-funded primarily through tuition and clinical revenue. The business plan assumes the use of an operating lease with a private developer who will construct a new Dental Education building. The College of Dental Medicine will be built and operated permanently without state appropriation.

The dental program at UCF supports the university's mission, vision, goals, and strategic initiatives, and serves to support the community and the needs of the state. The UCF College of Dental Medicine will help UCF achieve its vision for building the UCF Health Sciences Campus at Lake Nona.

- B. Using the table below, build out a general timeline for full implementation that identifies key activities related to seeking funding, facilities planning and construction, faculty recruitment, curriculum development, admission and enrollment of a full complement of students, and achieving program accreditation. Add rows as necessary.**

Activity	Timeline/Date Accomplished
Approval by BOG	November 2011
Facilities planning begins on Dental Education building	November 2011
UCF contracts with consulting group to help with the next phases of establishing a Doctor of Dental Medicine program and its accompanying College of Dental Medicine	November 2011
Notification letter sent to SACS COC of intent to pursue dental program	November 2011
BOG proposal refined by nationally recognized group of advisors and development of application for initial accreditation from the Commission on Dental Accreditation (CODA) proceeds	November 2011 – March 2012

Activity	Timeline/Date Accomplished
President, Provost, and V.P. for Medical Affairs talk with several potential donors about private donations for establishing a dental college	November 2011 - March 2012
Search for Dean of College of Dental Medicine	November 2011 - March 2012
Search for three Associate Deans	January - July 2012
Apply for market-rate tuition approval of Doctor of Dental Medicine program by Board of Governors	Spring 2012
Dean and senior administrators hired	July 2012
Dental Education Summit is held at UCF to bring internal and external partners together to discuss program	July 2012
Refinement of the application for Initial Accreditation	March - September 2012
Submit Initial Accreditation application to CODA	September 2012
Department chairs hired; faculty hiring proceeds	July - September 2012
Architectural designs completed for Dental Education building	September 2012
President, Provost, and V.P. for Medical Affairs continue to talk with several potential donors about private donations for supporting the program	Summer 2012
Admissions Office formed. Staff hired. Recruiting efforts begin with dental career fairs every fall and dental days every spring	Summer 2012
Curriculum and other faculty committees formed	Summer 2012 - Spring 2013
Curriculum refinements made	Summer 2012- Spring 2013
Application cycle begins with AADSAS	June 2012- February 2013
CODA site visit	Spring 2013
CODA decision	July 2013
Applications reviewed and admissions decisions made for Fall 2014 enrollment date	Spring - Summer 2013
Continue faculty recruiting	Spring 2013
Dental Education building completed, contingency space also available	Summer 2014
First class starts with 60 students	Fall 2014
First class takes NBED Part I	Spring 2015
Continue faculty recruiting	Spring 2015
Second class starts with 100 students; total enrollment is 159	Fall 2015
Second stage of accreditation completed	Fall 2015
Second class takes NBED Part I	Spring 2016
Continue faculty recruiting	Spring 2016
Third class starts with 100 students; total enrollment is 257	Fall 2016
Third class takes NBED Part I	Spring 2017
Fourth class starts with 100 students; total enrollment is 355 students	Fall 2017
Full accreditation achieved	Fall 2017

Activity	Timeline/Date Accomplished
First class takes NBED Part II and mock clinical boards. First class graduates	Spring 2018
Fourth class takes NBED Part I	Spring 2018
Fifth class starts with 100 students; total enrollment is 394 and will remain at this thereafter	Fall 2018

C. Identify educational sites at which the program is expected to be offered or which are associated with the proposed program, and whether the program will be associated with sites other than the main campus.

The D.M.D. degree program will be offered at the UCF Health Sciences Campus at Lake Nona in a new Dental Education building to be constructed adjacent to the College of Medicine Medical Education building. Included within the Dental Education building is a 200-chair Primary Dental Care Clinic where dental students develop their skills under the supervision of experienced dental faculty members. Dental students will volunteer in community clinics to satisfy a required service learning experience. No other educational sites are expected to be used for the educational program. A number of community clinics have expressed their enthusiasm about the potential opportunities that the new dental school will bring to Central Florida and have pledged their support (see Appendix E2 for letters of support from community clinics). No state funds will be requested for construction of the facilities.

INSTITUTIONAL AND STATE LEVEL ACCOUNTABILITY

II. Need and Demand

- A. **Need:** Describe national, state, and/or local data relative to the need for more dentists, especially any relevant data from the March 2011 Florida Department of Health Dental Workforce Survey.

Overview

The primary benefits for offering the D.M.D. degree program and building the UCF College of Dental Medicine at the UCF Health Sciences Campus at Lake Nona are the following:

- Economic benefits associated with building and operating the UCF College of Dental Medicine facility at the Lake Nona campus
- A richer educational experience for students through interprofessional education
- Meeting the need for dental care in Central Florida
- Meeting the need for more dentists throughout Florida

Central Florida and the entire state have a documented need for more dental care and dentists as evidenced by the following:

- Central Florida has an underserved population without access to dental care.
- The population of Central Florida is the fastest growing in the state, and Central Florida has increasing populations of African American, Hispanic, and elderly who are underserved with regard to dental care.
- The ratio of dentists per 100,000 of population is 60.4/100,000 for the U.S. but for Florida is 49.4/100,000.
- The state is approaching a period when the number of dentists is decreasing as more dentists retire than graduate in the state, and projections from the American Dental Education Association confirm it, as well as the Pew Center on the States report in 2010, and the Florida Department of Health State of Florida's Oral Health study in 2008.
- Using data from the *Report on the 2009-2010 Workforce Survey of Dentists* by the Florida Department of Health and the population projections from the Florida Demographic Estimating Conference, there is a need for between 355 and 504 new dentists per year over the next 40 years to account for retirement and mortality in dentists, population growth, and increase in the level of service.
- The University of Florida College of Dentistry and the NOVA Southeastern University College of Dental Medicine currently produce about 150 dentists annually who choose to practice in Florida.
- There is a significant unmet demand for dental education where 58 percent of applicants nationally and 62 percent of Florida resident applicants were not accepted at a dental school.
- Twelve percent of University of Florida graduates and 20 percent of NOVA Southeastern University graduates choose not to practice in Florida after graduation.

Economic Benefits and Building the Lake Nona Campus

The primary benefit of building the UCF College of Dental Medicine in Lake Nona is the enhanced economic development of Central Florida by realizing the vision of creating a health sciences campus that includes all health-related professional schools in the proximity

of multiple medical and research facilities located at or within walking distance of the UCF Health Sciences Campus at Lake Nona. The 50-acre health sciences campus, located 20 miles from the UCF main campus, is currently home to the UCF College of Medicine M.D. degree program and laboratory space associated with its Burnett School of Biomedical Sciences. Future plans are for the College of Nursing and other existing health professions degree programs (e.g., nursing, allied health, and public health) from the Orlando campus to move to the Lake Nona campus. Already within the growing medical city, the Sanford-Burnham Medical Research Institute opened in 2009, the MD Anderson Cancer Center Orlando Cancer Research Institute moved into the Burnett Biomedical Sciences building in 2009, the Orlando Veterans Affairs Medical Center is expected to open in 2012, the Nemours Children's Hospital is expected to open in 2012, the University of Florida Research and Academic Center at Lake Nona that includes the Orlando campus of the UF College of Pharmacy is expected to open in 2012, and other hospitals are planned within walking distance of the UCF campus. Locating the College of Dental Medicine and its D.M.D. program in this "Medical City" will enhance economic development in Central Florida, fill a missing piece in the systemic-health coverage of the health sciences campus, and promote interprofessional training and interdisciplinary research by integrating oral health care with primary medical treatments.

UCF is firmly committed to the economic development associated with the UCF Health Sciences Campus at Lake Nona. The UCF College of Medicine and health sciences campus, combined with a developing life sciences cluster, by 2017 is expected to create an additional 30,000 jobs and \$7.6 billion in annual economic activity (2008, Arduin, Laffer and Moore Econometrics). The proposed UCF College of Dental Medicine and the D.M.D. program will be an essential addition to the concentration of medically-related facilities and will contribute to the overall economic development in Central Florida. The D.M.D. program will bring dental care to the health sciences campus and provide more opportunities for employment growth and research. The UCF Health Sciences Campus at Lake Nona is a prime location in the state of Florida for a new College of Dental Medicine because of the synergies between the health and medically-related fields that will increase the economic development of this large metro region in ways that would be not be possible elsewhere.

The addition of the dental college to the UCF Health Sciences Campus at Lake Nona will add to the economic impact and has two elements. The first is the one-time initial economic impact of the construction and associated capital purchases, estimated at \$72.73 million. The impact is the result of direct, indirect, and induced effects of construction on the region's economy.

The second economic impact is the ongoing, yearly result of operating the dental college. This takes into account the direct, indirect, and induced effects of student-related and operations-related expenditures to obtain the total annual impact. It is estimated that the annual economic impact of the dental college will be \$68.53 million. (Sean Snaith, *Dental School Impact Study*, April 2011; see more detail in Appendix D) These estimates do not include research or clinical productivity by the students and faculty and this contribution could be considerable.

Several leaders and organizations in Central Florida (e.g., C.T. HSU & Associates, P.A., Central Florida Partnership, City of Orlando Mayor, Economic Development Commission, Hyatt Regency Orlando International Airport, Orange County Mayor, Tavistock Group, and Visit Orlando) also noted the positive economic impact of the proposed dental school in their letters of support (see Appendix E3).

Because this new degree program and the associated facilities will be self-funded and will not require allocation of state funds to support its operation, the return on investment is mathematically infinite. The immediate tangible benefits include the following:

- Increase in the number of professionals in Central Florida who are employed
 - 57 faculty members
 - 53 staff members
- New construction of a Dental Education building valued at \$42.8 million and the associated employment of workers to construct the building
- Increased jobs and sales in Central Florida related to purchase of furniture, fixtures, laboratory and clinical supplies needed to run the dental program
- Increase in new housing starts and rentals for 400 students and the associated faculty and staff
- Economic activity in the region associated with 110 employees and 400 students

Many qualitative benefits accrue from having a dental college in Lake Nona. Citizens of the community will have improved access to dental health care, particularly those with lower incomes who are underserved. The proposed dental college will include a 200-chair Primary Dental Care Clinic where students will develop their skills under the supervision of the faculty. This clinic will be able to provide very affordable dental care and procedures to patients who would otherwise not have access to such care.

In addition to the spending associated with an increased number of students and faculty, the following additional factors contribute to the increase in economic activity:

- Dentists who serve on the faculty of dental schools and the staff of affiliated dental clinics and hospitals are considered to be among the nation's best, and they attract patients to the area for their dental care.
- Health care-related companies prefer to locate near major health education and research programs.
- The dental researchers will collaborate with others at UCF, increasing the opportunities for additional grant support and research funding that will enhance the economy of Central Florida.

Although a dental degree program at UCF will require a number of years to mature, the establishment of a new dental school in the Orlando community will ultimately pay dividends for the region and the state in the short term and for the future.

Need for Interprofessional Education Opportunities

Studies cited by the Institute of Medicine indicate the following:

interprofessional, team-based care has the potential to improve care-coordination, patient outcomes, and produce cost-savings. Non-dental health care professionals have a significant role to play in oral health promotion and disease prevention, especially for children. Key modalities include basic examinations and risk assessments, patient and caregiver counseling, and the application of topical fluorides. (Committee on an Oral Health Initiative, Institute of Medicine. *Advancing Oral Health in America*, National Academies Press, Washington, D.C. 2011)

The Surgeon General's reports over the past decades have become guidelines for the entire nation. (U.S. Department of Health and Human Services, *Oral Health in America: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000)

This report linked the importance of oral health with general health and well-being. Oral health complications may be associated with respiratory disease, cardiovascular disease, and diabetes. The *Healthy People 2010* report included an objective to “increase the proportion of...health professional training schools whose basic curriculum for healthcare providers includes the core competencies in health promotion and disease prevention.” (www.healthypeople.gov. Accessed April 16, 2011) Interprofessional prevention education has been seen as a key strategy for achieving this objective and strengthening prevention content in health professions education programs. (Evans, CH, Cashman, SB,Page DA, Garr, DR. “Model Approaches for Advancing Interprofessional Prevention Education,” *Amer J Prev Med.* 2011;40(2):245–60; Wilder RS, et al. “Is Dentistry at Risk? A Case for Interprofessional Education.” *J Dent Educ.*2008;72(11):1231-7)

These dual roles of interprofessional care and education will be facilitated by placing medical students, nurses, and other health professionals in proximal contact with dental faculty members and students as well as oral clinic patients. Dental faculty members and students will be able to provide more comprehensive care to patients because of interprofessional collaborations with physicians, nurses, and other health professionals at the Lake Nona campus.

According to its vision statement, The University of Central Florida College of Medicine

will be the nation's premier 21st century college of medicine—a national leader in education, research, and patient care, recognized for supporting and empowering its students and faculty to realize their passion for discovery, healing, health, and life, and for its ability to create partnerships to transform medical education and health care.

This can only be achieved if UCF takes the lead in interprofessional education that includes a dental school on the UCF Health Sciences Campus at Lake Nona to provide medical students with critical oral health education and the opportunity to practice as an interprofessional team in the dental and medical clinics. This will ensure that students in medicine, dental, nursing, and other health professions receive the interprofessional education they need to optimize treatments and teach their patients about wellness, including best practices in oral health.

Another benefit of building the UCF College of Dental Medicine is its contribution to the overall research goal of the university. Dental basic science and clinical faculty members will contribute to clinical trials and biomedical research in other medical realms, helping to create a unique interdisciplinary approach to the way in which medical science accumulates knowledge, advances understanding, and improves longevity and quality of life.

Need for Dental Care in Central Florida

Need for increased dental care opportunities in Central Florida are noted by several Central Florida health clinics in their support letters for the College of Dental Medicine (see Appendix E2). According to the Central Florida Family Health Center that attempts to address the Medically Underserved Areas in regards to dental services in Central Florida, “The demands for dental services are great and continue to grow.” The Health Council of East Central Florida indicated that “The 2009 Community Health Needs Assessment for Central Florida revealed that only 46.1 percent of low-income adults and 44.7 percent of uninsured adults had visited a dentist or dental clinic in the past 12 months. The *Healthy People 2010* visit objective is a minimum of 56 percent.” The Orange County Health Department

indicated that “According to the latest available data, 16.9 percent of Orange County residents who needed to see a dentist could not due to cost.”

In 2000, the Surgeon General issued a report asserting that oral health is essential to the general health and well-being of all Americans. However, the report concluded, “[w]hat amounts to ‘a silent epidemic’ of oral diseases is affecting our most vulnerable citizens—poor children, the elderly, and many members of racial and ethnic minority groups.” (U.S. Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000) These are precisely the populations being underserved by dentists in the Central Florida region.

One established cause of this “silent epidemic” is the number of health professional shortage areas (HPSAs) for dental care, as reported in *Oral Health in America* by the Health Resources and Services Administration of the U.S. Department of Health and Human Services in 2000. The Central Florida region is rife with HPSAs and underserved populations, as shown in Table II.1. (Data accessed from Health Resources and Services Administration of the U.S. Department of Health and Human Services website, www.hrsa.gov, on 4-13-2011) Depending on the state agency or non-governmental organization doing the reporting, the number of counties in Central Florida can number as few as seven and as many as twelve to fourteen. For the purpose of this analysis, data from ten Central Florida counties were used.

Table II.1. Summary of Federally Designated Dental Health Professional Shortage Areas in Nine Counties in Central Florida

County in Central Florida	Whole County or Geographic Service Area(s) Designated as Dental HPSA	Population of Underserved Dental HPSA
Brevard	4	214,329
Hardee	2	11,930
Highlands	4	37,812
Lake	2	61,986
Marion	5	92,570
Orange	12	186,743
Osceola	2	62,898
Polk	2	159,773
Seminole	1	13,071*
Sumter	5	21,182
TOTAL	35	862,294

* Estimate using primary care statistic, which is the only one available for Seminole County,

and likely represents an under-reporting of the true population of this underserved dental HPSA

Based on the HRSA Data Warehouse (<http://datawarehouse.hrsa.gov/hpsadetail.aspx> accessed April 28, 2011), there are currently 224 dental health professional shortage areas in Florida. As reported by the Florida Department of Health (FDOH, *State of Florida's Oral Health*) in 2008, there were 327 dental HPSAs statewide, and 8.5 percent of Florida's population lived in a dental HPSA. (Florida Department of Health. The State of Florida's Oral Health. <http://www.doh.state.fl.us/Family/dental/OralHealthcareWorkforce/presentations/state.pdf>, 2008. Accessed April 15, 2011)

The Pew Center on the States (*The Cost of Delay: State Dental Policies Fail One in Five Children*, February 2010) reported that roughly 4,500 new dentists graduated from the United States' 56 dental schools, but it would take more than 6,600 dentists choosing to practice in dental HPSAs to provide care for those 30 million people who are underserved. More than 10 percent of those are needed in Florida alone, where it would take at least 751 new dentists to close the access gap. This number will be even higher now due to the ongoing increase in the underserved populations, as shown below.

According to the 2010 U.S. Census, the population in Florida since the 2000 Census has increased by more than 2.9 million and was strongest along the Florida's Turnpike corridor through Central Florida. (US Census Bureau. *US Population Projections, Table 5: Interim Projections: Population under age 18 and 65 and older: 2000, 2010, and 2030*. <http://www.census.gov/population/projections/PressTab5.xls>. Published April 2005. Accessed April 15, 2011) Orange County grew 28 percent, adding nearly a quarter-million people—the most in the state—and ended the decade with a population of 1,145,956. Osceola's 56 percent growth created a population of 268,685, and Lake County grew 41 percent to 297,052.

In Osceola County, the Hispanic population more than doubled, and in Lake County it more than tripled. Statewide, Hispanics accounted for 55 percent of the state's population growth, adding more than 1.54 million new residents to Florida. (Powers S, Maines J, Williams D. "Hispanics Powered Florida's Population Growth Since 2000, Census Shows," *Orlando Sentinel* and *Fort Lauderdale Sun Sentinel*, March 16, 2011) In addition, Florida added 664,000 Black residents, including some who also identified themselves as Hispanic; 188,000 Asians; 18,000 American Indians; and more than 200,000 who identified themselves as another racial group or of mixed racial heritage. The rapid increase of minorities tends to reduce the median age of the population since so many minorities moving to the region are young and having children. The portion of minority children, both black and Hispanic who are younger than 18, increased from 45 percent in 2000 to 54 percent in 2010. In addition, there is an increasing proportion of elderly residents in the state and the Central Florida region, a trend that is expected to grow as well. (US Census Bureau, *ibid.*; MyRegion.org Demographics and Social Services Implementation Team. "Central Florida's quality of life: demographics and social services white paper", August 8, 2006)

These statistics are significant because the dental HPSAs tend to encompass significant portions of the low-income minority and elderly populations. According to the Pew Center on the States, only 23.8 percent of Medicaid-enrolled children in Florida received dental care in 2007, ranking the state as 49th out of 50. (Pew Center on the States, February 2010). In addition, Oral Health America gave Florida a grade of F for older adult dental coverage. (Oral Health America. *State of Decay: the Oral Health of Older Americans*, September 2003)

Florida Dental Association President, Dr. Charles Hoffman, stated in a press release on February 23, 2010, "Although the legislature faces another daunting task in balancing the budget, the PEW report is just the latest of several studies suggesting that oral health be at the top of the state's priorities when the economy begins to recover." (Florida Dental Association. *FDA Addresses Pew Foundation Report on State's Dental Health*, February 23, 2010) As reported by Arielle Stevenson of tampa.creativeloafing.com, the Florida Pediatric Academy and the Florida Dental Association sued the state of Florida for failure to provide essential medical and dental care for children on Medicaid. She says that "The suit also states that there is an insufficient number of dental and medical providers, due to the state's extremely low reimbursement rate."

An estimated 80 percent of dental disease in Florida occurs in approximately 20 percent of the population: largely the young and the elderly and especially the minority populations within these groups. (Florida Department of Health, *State of Florida's Oral Health*, 2008). The 20 percent are made up, in part, of the following groups:

- Minorities -31.7 percent
- Children - 22.8 percent
- Elderly - 17.6 percent (and growing)
- Poverty - 12.6 percent (one of the top 5 in the U.S)

These groups are prevalent in Central Florida. The UCF Doctor of Dental Medicine degree program will produce graduates to address the oral health needs of these populations. As will be expanded upon later in the proposal, minority dentists tend to practice in minority communities or have a greater percentage of minority patients, so not only will recruiting for students in Central Florida produce more minority dentists, but these dentists will tend to stay in the community and treat larger numbers of the population that have the greatest need. (Florida Department of Health, *Health Practitioner Oral Healthcare Workforce Ad Hoc Committee Report*, February 2009)

National and State Dentist Shortages

With the potential development of new dental schools in Florida and nationwide, it is valuable to examine the demand for dentists in the state of Florida and the potential for dental schools to meet that need. The March 2011 *Report on the 2009-2010 Workforce Survey of Dentists* by the Florida Department of Health that included the results of an extensive survey of dentists provided much needed valuable data on current dental practice in Florida. The report conducted an initial examination of workforce needs that considered planned retirements from active dentistry. The report compared the projections through 2050 of new dentists entering the profession with those intending to leave and concluded that the new dentists will more than offset the attrition associated with retirement. The initial analysis of dentist retention and attrition and the replacement of those dentists presented in the Florida Department of Health *Report on the 2009-2010 Workforce Survey of Dentists* is a first step in looking at the broader question of balancing needs and service. However, the report did not consider mortality effects in its workforce projections and noted that it did not consider population growth or any changes in service levels.

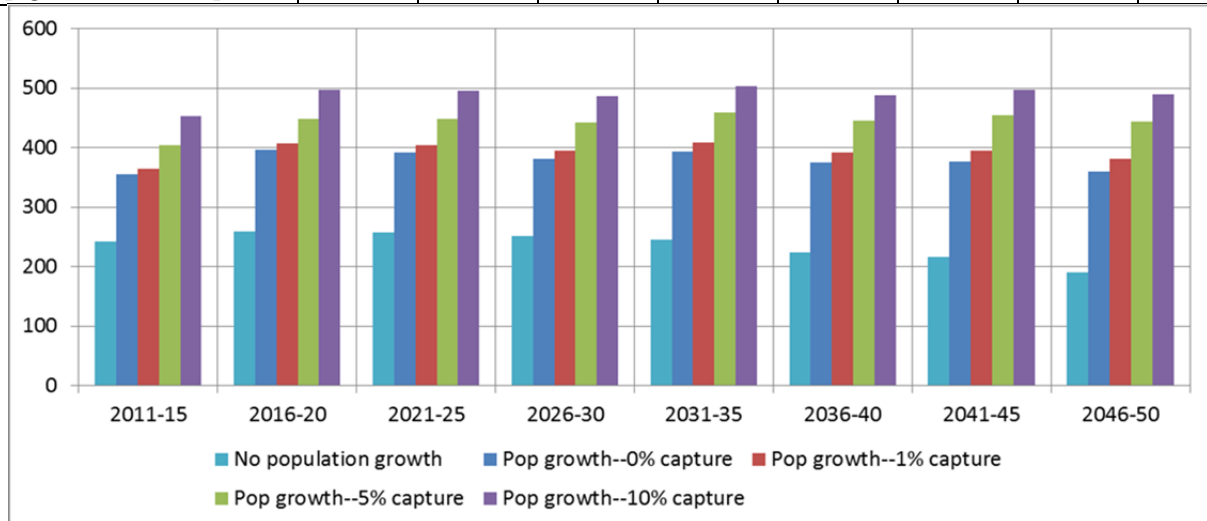
The analysis included in this proposal and documented in Appendix F follows up on that initial *Workforce Report* analysis and extends the analysis to consider the important areas not addressed in the original Florida Department of Health analysis. The new results account for both mortality and retirements in projecting workforce needs to meet identified total workforce levels. In addition, the analysis considers five different workforce levels:

- No population growth and maintenance of current level of service
- Respond to population growth and maintenance of current level of service
- Respond to population growth and capture one percent of the population not currently served
- Respond to population growth and capture five percent of the population not currently served
- Respond to population growth and capture ten percent of the population not currently served

The numbers of new dentists needed annually to meet these alternatives are summarized in the following Table II.2 and illustrated in the figure that follows the table.

Table II.2. Number of New Dentists Needed Annually

	2011-15	2016-20	2021-25	2026-30	2031-35	2036-40	2041-45	2046-50
No population growth	242	259	257	252	245	224	216	190
Pop growth--0% capture	355	396	392	381	393	375	376	360
Pop growth--1% capture	365	407	404	395	408	392	395	381
Pop growth--5% capture	404	449	449	442	459	446	454	444
Pop growth--10% capture	453	497	496	487	504	489	497	489



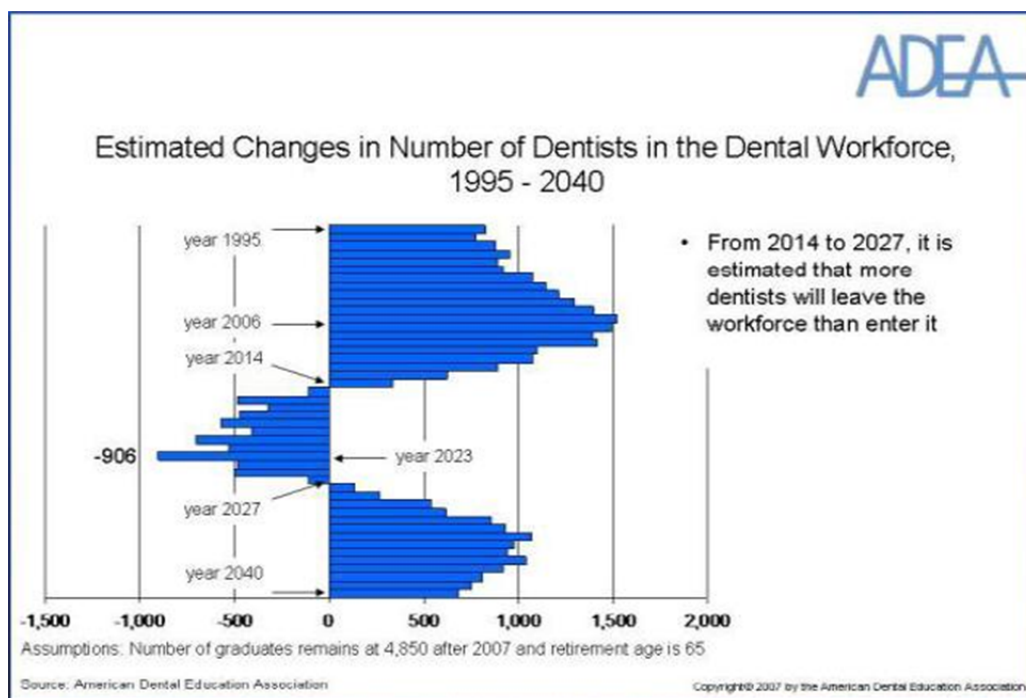
The University of Florida College of Dentistry D.M.D. program currently contributes about 70 new dentists and Nova Southeastern University College of Dental Medicine currently contributes about 80 dentists each year to Florida's practicing dentists—graduates who choose to practice in Florida. Comparing this supply of 150 dentists with the total needs shown in Table II.2 leads to an identified need for additional dentists from other sources. Responsible planning to meet expected population growth and reasonable initiatives to increase the percentage of the population that sees a dentist on a regular basis suggest that there is an increasing demand for dentists greater than previously described. The details of this analysis are provided in Appendix F to the proposal.

Another way to look at the increasing need for more full-time dentists is to consider the dentist-to-population ratio. In 2008, this ratio for the U.S. overall was 60.4/100,000, whereas in Florida it was 49.4/100,000. (Florida Department of Health, *State of Florida's Oral Health*, 2008) Simply to achieve parity with the country on average, FDOH estimated that the state

would need an increase of 2,104 more dentists, at a time when the two dental schools are graduating about 150 per year who remain in Florida to practice. In the three years since FDOH reported these conclusions, the population in Florida has continued to grow, especially among the at-risk groups, so the need is even higher. In a survey conducted of current dentists in 2010, the FDOH stated that it might be possible to create a pool of 2,000 dentists who currently live out of state and report that they have plans to practice in Florida and of those who are not licensed to practice dental medicine although trained to do so to meet this gap. This potential plan by FDOH to import dentists will not address the needs of Florida citizens who have limited access to dental education opportunities and a chance to raise their living standards. The need in Central Florida to access dental care is particularly acute. Only Brevard and Seminole counties have access to dentists at national averages. All other counties are below national averages, and Osceola, Hardee, and Polk counties have low dentist to population ratios.

In the previously referenced 2008 FDOH presentation, it was reported that, due to the closing of dental schools in the 1980s and decreases in class sizes in the 1980s and 1990s, the state is approaching a period when “[t]he number of dentists is decreasing as more dentists retire than graduate.” (Florida Department of Health, 2008, *The State of Florida’s Oral Health*) This argument is bolstered by a projection from the American Dental Education Association, which estimates that between the years 2014 and 2027 more dentists will leave the workforce than enter it. (American Dental Education Association, *Estimated Changes in Number of Dentists in the Dental Workforce, 1995-2040*. 2007) This estimate is illustrated in Figure II.1.

Figure II.1. ADEA Estimated Changes in Number of Dentists in the Dental Workforce, 1995-2040



Other trends that suggest declining access to dental care are (1) the tendency of aging dentists to work fewer hours and see fewer patients each week and (2) the proportion of practicing dentists who are women, projected to increase to 28 percent by 2020, which likely

will result in dentists averaging fewer working hours per week due to childcare and other gender-role issues. (Florida Department of Health, February 2009, *ibid.*)

When considering the need for additional dentists in Florida, it also is instructive to examine rates of applications, matriculation, and graduation from Florida dental schools and U.S. schools overall. Table II.3. is a compilation of statistics reported by the American Dental Association in 2010. (American Dental Association. *2009-10 Survey of Dental Education*, April 2011). The number of examined applications includes those where files are complete and were examined by an admissions committee. There were 57,634 total examined applications in 2009-2010 from 12,202 individuals who applied to dental schools. Of the 83 first year enrollees at the University of Florida, 73 were from Florida. There are 330 total dental students at the University of Florida. Of the 108 first year enrollees at Nova Southeastern University, 55 were from Florida. There are 430 total dental students at Nova Southeastern University.

Table II.3. Number of U.S. and Florida Dental School Examined Applications, First-Year Enrollment, and Graduates 2009-10**

School	Number Of Examined Applications	First-Year Enrollment	Number Of Graduates
U.S. Schools Overall	57,634	5089	4,796
University of Florida	1399	83	81*
Nova Southeastern University	348	108	101*

*Highest number of graduates ever for both schools in the last 10 years was 83 for UF, 105 for Nova

**Applications that are complete and examined by an admissions committee

Due to the lure of lucrative suburban practices and low Medicaid reimbursements in Florida, Florida's dentists are not living and/or practicing in the areas of greatest underserved need. (Pew Center on the States, *ibid.*; Florida Department of Health, 2008, *ibid.*). Table II.4 demonstrates this for nine counties in Central Florida. (*Florida Oral Health Workforce Statewide Needs Assessment* prepared for Florida Department of Health Public Health Dental Program by Institute for Child Health Policy of the University of Florida, August 2009)

Table II.4. Dentists and Dental Hygienists per 10,000 Population by County, 2007

County	Dentists/10,000 Population	Dentist/Population Rank (1=Highest, 67=Lowest)	Dental Hygienists/10,000 Population	Dental Hygienist/Population Rank (1=Highest, 67=Lowest)
Hardee	1.45	54	0.73	66
Highlands	3.44	27	3.95	46
Lake	3.66	26	5.38	26
Marion	3.26	29	5.38	25
Orange	4.96	15	4.50	38
Osceola	2.10	46	2.63	58
Polk	2.39	42	3.67	51
Seminole	5.50	11	5.78	18
Sumter	0.67	63	1.56	63

Some dentists do not live in underserved rural areas because they cannot afford to practice there. Other dentists who live in underserved urban areas choose not to be Medicaid providers because they cannot afford to. According to the Florida Department of Health, 90 percent of Florida dentists are in private practice, and a decreasing number are accepting Medicaid patients each year.

The FDOH's 2009 *Health Practitioner Oral Healthcare Workforce Ad Hoc Committee Report* noted the following significant downward trend in servicing low-income Floridians: (Florida Department of Health, February 2009, *ibid.*)

- Florida Active Licensed Dentists: 9,464
- Enrolled Medicaid Providers: 1,479
- Active Medicaid Providers: 912

Florida has two dental schools at present: the publicly funded University of Florida College of Dentistry in Gainesville and the privately funded Nova Southeastern University College of Dental Medicine in Fort Lauderdale-Davie. In addition, LECOM in Bradenton received Initial Accreditation from CODA to teach approximately 100 dental students per year beginning in 2012. These schools are in the north, south, and west coast areas of the state, respectively. With the exception of a few dental hygiene programs unconnected to these universities, there is a large vacancy with respect to dental education in the Central Florida area, as shown in Figure II.2. (Institute for Child Health Policy of the University of Florida, *ibid.*)

Figure II.2: Location of Dental and Dental Hygiene Education Programs by County in 2008



Dental school location becomes important when one examines the dentist-to-population ratio. Instead of focusing on the bottom-half of the rankings—where many of Central Florida’s counties are found—it is illuminating to look at the highest dentist-to-population ratio. According to the FDOH Health Practitioner Oral Healthcare Workforce Ad Hoc Committee, the best ratio in Florida was achieved in Alachua County with a score of 91 dentists per 100,000 of population. Recall that the average ratio across the U.S. at the time of the report was 60.4 per 100,000 citizens and Florida was 49.4 per 100,000 citizens. According to the Ad Hoc Committee, the favorable Alachua County ratio was “mainly due to the University of Florida College of Dentistry’s location there.” (Florida Department of Health, February 2009, *ibid.*) The Florida Department of Health *Report of the 2009-2010 Workforce Survey of Dentists* reported that among University of Florida dental graduates, representation as a share of all dentists practicing is highest in northeast Florida lowest in south Florida while representation of NOVA Southeastern University is highest in south Florida. These behaviors suggest that the presence of a dental school at UCF should help to boost the dentist-to-population ratio in Central Florida.

Summary

There is a clear need for more dental services and dentists at the national, state, and local levels. While other measures may be needed to incent dentists to practice in areas to support underserved populations in Florida, numerous initiatives are underway in Florida to do that. The need for increased service levels, combined with the retirement and mortality attrition of dentists and the expected population growth in Florida create a clear need for additional dentists. A dental college located in Orlando at the UCF Health Sciences Campus at Lake Nona is a logical choice to expand the state’s dentist population. Creating a D.M.D.

degree program at the University of Central Florida will have a positive impact on the health care systems in Florida and the community development of the region and state. The UCF D.M.D. degree program will help manage the existing and projected dentist shortage by graduating more dentists in Florida to address the future need, which will improve the quality of health care statewide. Importantly, the dental school, with its Primary Dental Care Clinic, will help to provide needed dental care to low income patients in Central Florida. Additionally, the dental school will help to enhance the interprofessional education and interdisciplinary research opportunities at the health sciences campus. Most importantly, the UCF College of Dental Medicine will help realize the projected economic impact of the life sciences cluster developing at Lake Nona.

B. Demand: Provide data that support the assumption that students will enroll in the proposed program.

A 2008 study by the American Dental Education Association revealed that of the 6,403 total applications made by Florida residents to dental schools nationwide, only 1,023 were submitted to the University of Florida and Nova Southeastern University, constituting 16 percent of the total applications. (Okwuje I, Jones G, Anderson E, Valachovic RW. "U.S. Dental School Applicants and Enrollees, 2008 Entering Class." *J Dent Educ.*2010;74(8):902-25) Over 5,300 applications were submitted by Florida students to other states for dental education.

This is a missed opportunity for Florida since dental school graduates often elect to practice in the area where their dental school is located. This is demonstrated by examining the Alachua County dentist-to-population ratio. It has a score of 91 dentists per 100,000 of population, the highest in Florida, because of the University of Florida dental school. Recall that the average ratio across the U.S. at the time of the report was 60.4 per 100,000 citizens and Florida was 49.4 per 100,000 citizens.

By attracting the best students from across the country and in Florida, the UCF D.M.D. program will create additional dentists who will practice in Florida. The 6,403 applications were submitted by 612 total applicants, overall the fourth largest number of individual applicants from any state, reflecting our state population as 4th largest in the nation. Florida residents were also the fourth largest number to enroll, at 233, again reflecting our state population. Thus only 38 percent (233/612) of Florida applicants actually matriculate at a dental school. UF and Nova Southeastern enroll annually about 125 Florida residents, so nearly 100 Florida residents, 54 percent, went out of state for dental education and over 400 were not admitted to any U.S. dental school.

Nationwide, there were 5,089 first year students in 2009-2010 enrolled in D.M.D. and D.D.S. programs. There were 12,202 individuals who applied for admission and 41.7 percent who enrolled. (American Dental Association. *2009-2010 Survey of Dental Education, Academic Programs, Enrollment, and Graduates, Volume 1*, 2011) Sixty-two percent of the Florida residents who apply to dental school are not accepted into any dental school, even though many are qualified to attend.

Table II.5 shows the rate at which Florida residents applied in-state for the fall 2010 entering class from the ADEA *Official Guide to Dental Schools*, 2011.

Table II.5. Number and Percentage of In-State Applicants and New Enrollees by School, Entering Class Fall 2010

Dental School	Total Applicants	In-State Applicants	Percent of In-state Applicants	Total New Enrollees	In-State Enrollees	Percent In-state Enrollees
University of Florida	1,533	578	37.7%	83	75	90%
Nova Southeastern University	3,298	NR*	-	110	56	51%

* Nova Southeastern reported total applicants and did not report residency

A dental school at UCF will provide students who desire such an education with an opportunity to pursue this career path.

Table II.6 below shows applicant and first-year enrollee information for the pool applying and enrolling for fall 2010. The credentials of those who apply and those who enroll are fairly similar, indicating there is a large qualified pool of applicants to dental schools who are not admitted. The DAT is the Dental Admissions Test which is composed of four parts: natural sciences, perceptual ability, reading comprehension, and quantitative reasoning. The Academic Average (AA) is the average of the standard scores on the quantitative reasoning, reading comprehension, and natural sciences parts. The PAT is the Perceptual Ability Test.

Table II.6. Student Characteristics for Applicants and New Enrollees by School for the Entering Class Fall 2010 (ADEA Official Guide to Dental Schools, 2011, pg. 38)

	DAT - AA applicants	DAT- AA first year enrolled	DAT - PAT applicants	DAT- PAT first year enrolled	GPA applicants	GPA first-year enrolled
University of Florida		19		20		3.6
Nova Southeastern		19.58		20		3.7
National averages	18.2	19.3	18.8	19.6	3.35	3.53

Figures II.3 and II.4 illustrate the distribution of average DAT Academic Average and Pre-dental overall GPA averages for each of the dental schools for fall 2009. Within each school, there is also a distribution of scores that obviously ranges above and below the averages reported for each school.

Figure II.3. DAT Academic Average Scores for Individual Dental Schools

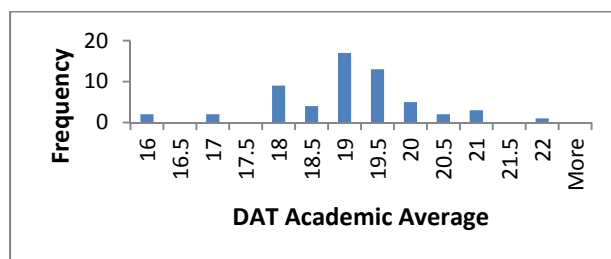
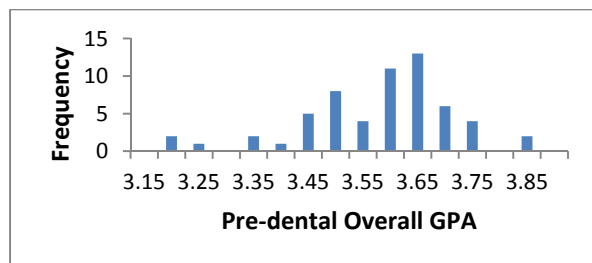


Figure II.4. Pre-dental Overall GPA Averages for Individual Dental Schools



As indicated in Table II.6, the two Florida dental schools are able to attract students of above average quality based on these performance metrics.

With respect to the dental schools' source of institutional support (public, private, and private-state related), Table II.6 illustrates the respective performance measures.

Table II.7. Dental School Enrolled Student Quality Measures, 2009-2010 by Source of Institutional Support

2009-2010	DAT Academic Average	Pre-dental overall GPA
Public (weighted)	18.6	3.59
Private (weighted)	19.1	3.44
Private-State Related (weighted)	19.0	3.56
National Average (weighted)	18.8	3.54

The results in Table II.7 show that the public institutions score lowest on the DAT but highest on the GPA while private institutions are just the opposite, highest on the DAT and lowest on the GPA. The four private-state related institutions are in the middle on both measures. Although the proposed UCF College of Dental Medicine will operate more like a private or private-state related institution from a tuition perspective, there is no obvious general conclusion from the Table II.7 data that would inform the decision process regarding the ability of UCF to attract high quality students.

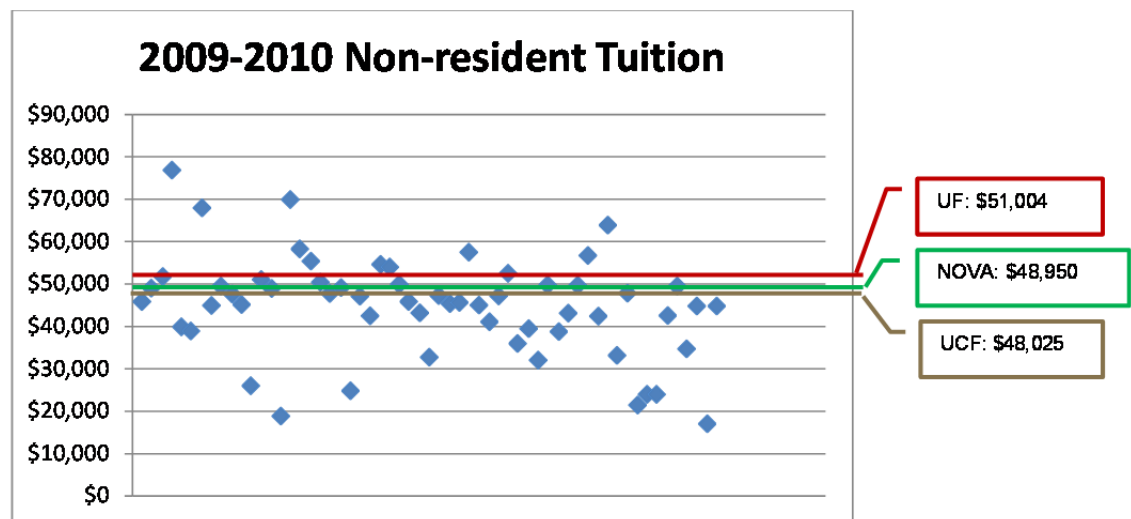
What is known from the above data is that approximately 62 percent of the applicants to dental school are not admitted. In Florida, the two operating schools are able to attract above average students by at least one academic performance or readiness measure. If the students who matriculate (40 percent of applicants) are uniformly better than those who were not admitted to dental school, it is still likely that the next 10 percent (i.e., 1,200 applicants) will be relatively well-qualified. The next 100 best-qualified applicants below the admission threshold will still be very qualified and expected to have performance measures

near the national averages. It is likely that the current performance of the Florida schools (Table II.6) and the quality reputation of UCF will provide a sufficient draw for these quality students.

Because UCF proposes to use a market-rate tuition approach, it is important to examine the likelihood of sufficient applicants willing to pay that tuition level. For dental programs in private institutions, tuition is generally set at levels that will cover the cost of instruction after accounting for contributions for other sources such as foundation, clinical practice, and research. For public institutions, there is usually a non-resident fee above the tuition level or a separate non-resident tuition that is intended to cover the total cost of instruction. Because the UCF proposal requires no new state appropriations for its operations, the supporting business model requires the tuition levels to be set at market rates sufficient to provide the needed financial support. Therefore, the appropriate reference point for examining tuition for the proposed UCF Doctor of Dental Medicine program is the non-resident tuition at other dental schools, both public and private. Table 7 in Appendix G includes the relevant data.

The first-year non-resident tuition in fall 2009 ranges from a low of \$16,991 (University of Puerto Rico) to a high of \$76,832 (University of the Pacific). The proposal for the UCF Doctor of Dental Medicine degree program specifically anticipates a tuition level of \$55,675 per year for the class starting in 2014. Using the tuition escalation factor of 3 percent that is used in the proposal, this starting tuition is equivalent to a first-year tuition of \$48,025 in 2009, the base year for comparison in this analysis. The 2009-2010 tuition levels for the University of Florida College of Dentistry is \$51,004 and NOVA Southeastern University College of Dental Medicine \$48,950. The variability in the non-resident tuition is illustrated in Figure II.5.

Figure II.5. Dental School Non-resident Tuition, 2009-2010



The analysis in Appendix G examines the percentages of enrolled students who are non-residents and their average tuition levels at both public and private schools (see Table 8 and Table 9 in Appendix G). Nationwide, nearly 40 percent of enrolled first-year dental students are non-residents paying an average of \$44,810 in fall 2009. Based on their school selection,

the 115 Florida residents who are attending an out-of-state dental school are currently paying an average of \$46,475 in non-resident tuition.

Of the 5,089 first year enrolled students in fall 2009, 1,690 students were paying tuition at or above the fall 2009 UCF Doctor of Dental Medicine degree program equivalent tuition of \$48,025. This represents over 33 percent of all newly enrolled dental students paying tuition above the proposed UCF market rate. Moreover, in Florida's two dental schools, 49 percent of the students pay tuition greater than the proposed UCF rate. This further supports the notion that there is a substantial pool of applicants willing to pay at this market rate. The UCF escalation rate of 3 percent is below the recently experienced tuition increases in Florida and should result in the UCF tuition being more competitive.

When examining the number of dental schools in the most populous states, Florida, with two, has fewer than other states. California has six dental schools, New York has four, and Texas has three. Florida will overtake New York at the third most populous state in the next one to two decades, and clearly needs more dental schools to provide dental care to its citizens.

UCF has a history of producing qualified students to go on to professional schools. In 2010, UCF had 141 students apply for admission to dental schools, and 47 (33.3 percent) of those seeking admission were accepted. Twenty-four went to either the UF or Nova Southeastern dental schools, while 23 went out of state. The UCF Doctor of Dental Medicine degree program will capitalize on the talented students in the UCF undergraduate programs and recruit from this source of applicants and students from other universities across the country with a particular emphasis on enhancing the diversity of the student body, including geographic diversity.

The planned enrollment for the UCF College of Dental Medicine is 394 students. This number assumes 100 students are admitted to each class and that there is a two percent attrition after the first year of instruction. Since fewer than 40 percent of the qualified dental school applicants across the country are currently admitted into dental programs, and there is a demonstrated willingness for students to pay a market-rate tuition, UCF does not anticipate that it will be difficult to establish a qualified applicant pool for admission.

A strong financial assistance program to attract and retain the very best students for the UCF Doctor of Dental Medicine degree program will be developed. It is common for dental students to receive subsidized or unsubsidized loans to offset the educational costs.

C. Summarize the outcome(s) of communication with the college of dentistry at the University of Florida with regard to the potential impact on its overall and minority enrollment. In Appendix B, provide a letter of support or of concern from the provost of the University of Florida.

There have been several conversations with the University of Florida regarding the establishment of the Doctor of Dental Medicine program at UCF. When the idea was first considered, UCF President John Hitt had a conversation with UF President Bernie Machen regarding the possibility. At that time, President Machen indicated that he would not oppose the D.M.D. program at UCF. There have also been conversations between UCF Vice President for Medical Affairs Deborah German and UF College of Dentistry Dean Teresa Dolan regarding a D.M.D. program at UCF. Dean Dolan indicated her concern about public health issues, and although she agreed that the UCF dental college would serve some of the underserved it would not be able to solve the problem. Indeed the UF College of Dentistry

has not been able to solve the problem either. Dean Dolan thought it would take statewide public health policies to address the issue of the rural and underserved population in Florida. She stated that it was not her place to decide whether a new dental school was needed but if a new dental school was approved by the BOG she thought it should be at UCF because of the university, the research that UCF is currently doing, and the synergy with the medical city. Neither of these conversations addressed the potential impact on overall or minority enrollment. Finally, there have been several communications between UCF Provost Tony Waldrop and UF Provost Joe Glover regarding potential support or concerns regarding the proposed D.M.D. program at UCF. Provost Glover has promised a letter. That letter has not been received at the time this proposal was prepared for submission.

As noted in Section II.B, both the University of Florida and NOVA Southeastern University attract applicants and enrolled students of above average quality. Furthermore, a significant number of Florida resident applicants to a dental school are not accepted at any Florida dental schools. It is likely that the University of Florida, in particular, will not be affected by a new Doctor of Dental Medicine program at UCF.

- D. Use Table 1 in Appendix A to categorize projected student headcount (HC) and Full Time Equivalents (FTE) according to primary sources from the first year of enrollment through the year of full enrollment. Add or delete columns as necessary to indicate that span of time. Provide accompanying text to Table 1 here below, and describe the rationale underlying enrollment projections.**

Table 1 in Appendix A provides the number of students (headcount and FTE) that the UCF Doctor of Dental Medicine degree program expects to enroll during the first five years of program implementation and thereafter. FTE projections are made based on the standard curriculum guidelines of a full-time student population enrolled for an entire year. The proposed UCF Doctor of Dental Medicine degree program will enroll 60 students in its first class in fall 2014 and 100 students in the second and following years, culminating in a student population of approximately 394 by Year 5 and thereafter. Each student is considered as one FTE.

As noted in Section II.B of the proposal, the number of students applying annually to dental schools across the nation far exceeds the number of seats available. The UCF Doctor of Dental Medicine degree program intends to seek applicants from the state and the national pool. The current plan calls for approximately 25 percent percent of the applicants coming from out-of-state. With the market-rate program, the out-of-state percentage could go higher as needed. The in-state applicants would be approximately an equal mix from UCF, other Florida public universities, and private colleges as qualifications dictate. The Doctor of Dental Medicine degree program is interested in achieving a diverse student body in terms of geography, academic background, and life experience in addition to race and gender.

- E. Indicate what steps will be taken to achieve a diverse student body in this program. The submitting university's Equal Opportunity Officer must review this section of the proposal and then sign and date in the area below to indicate that the analysis required by this subsection has been reviewed and approved.**

University of Central Florida President John C. Hitt has adopted strong policies to support the achievement of all of the five goals at UCF, including the goal to promote inclusivity and diversity. In the January 4, 2011 Issue of *UCF Today*, he wrote, "The importance of inclusiveness and diversity also drives the highly successful 'Provost's Diversity Enhancement Program,' whose goal is to increase faculty diversity at UCF. This program is so important that I directed it be spared from university-wide budget cuts." Diversity goals, Dr. Hitt continued, encompass student makeup as well as faculty: "Overall, non-majority students make up 34 percent of our student body in 2010, an increase of two percent from last year. I am very proud of these increases...Further proof of our commitment to inclusiveness and diversity can be found in the success of our academic programs. UCF now ranks among the nation's top 10 institutions in awarding degrees to minority students in education, health care and business, according to *Diverse: Issues in Higher Education*." (Hitt, JC. "President Hitt addresses diversity." *UCF Today*, January 4, 2011. <http://today.ucf.edu/president-hitt-addresses-diversity/>. Accessed April 17, 2011)

To establish the most creative, innovative recruitment and retention programs specifically directed toward dental school students, UCF will examine models created by other universities that are successfully recruiting and retaining minority dental school students. The Pipeline, Profession, and Practice: Community-Based Dental Education program was a five-year (2002-2007) national demonstration program for 11 dental schools—with funds from the Robert Wood Johnson Foundation—and a similar pipeline program involving four California dental schools that received funding from The California Endowment and the University of California, San Francisco. (Andersen RM, et al. "Recruitment and Retention of Underrepresented Minority and Low-income Dental Students: Effects of the Pipeline Program." *J Dent Educ*.2009;73(2):S238-58; Formicola, A, et al. "The Dental Pipeline Program's Impact on Access Disparities and Student Diversity," *J Am Dent Assoc*. March 2009;140:346-353)

The following fifteen dental programs participated in one of the following Pipeline programs:

- Boston University, Goldman School of Dental Medicine
- Howard University, College of Dentistry
- Loma Linda University
- Meharry Medical College, School of Dentistry
- Temple University School of Dentistry
- The Ohio State University, College of Dentistry, Columbus
- University of Connecticut Health Center, School of Dental Medicine
- University of California at Los Angeles, School of Dentistry
- University of California at San Francisco, School of Dentistry
- University of Illinois at Chicago, College of Dentistry
- University of North Carolina at Chapel Hill, School of Dentistry
- University of the Pacific, Arthur A. Dugoni School of Dentistry
- University of Southern California, School of Dentistry
- University of Washington, School of Dentistry
- West Virginia University, School of Dentistry

These programs recorded a number of successes and positive impacts in the recruitment of minority and low-income students. Strategies included recruitment at underrepresented minorities and low-income students' colleges, supplying information to and making presentations at pre-dental campus associations and clubs, summer programs, and working

with high schools and clinics to generate interest in dentistry as a career for underrepresented minorities and low-income students. Focused recruiting efforts such as sponsoring visits to dental schools and providing pre- or post-baccalaureate dental career programs were especially helpful in increasing the numbers of low-income and underrepresented minority applicants admitted to these dental schools. Pipeline program schools also saw significant increases in the number of enrollments from these groups.

Historically, minority dental students, with the exception of Asian-Americans, continue to have access to dental education at a rate far below the proportion of minorities in the general population. Nationally, the majority of applicants (48.2 percent) were white, followed by Asian (33 percent), Hispanic (5 percent), and Black (4.1 percent); less than one percent of applicants were American Indian in ethnicity (0.4 percent), and race/ethnicity was not specified for 9.4 percent of applicants. (American Dental Association, *ibid.*) Though dentistry has been a historically male-dominated profession, women are pursuing dental education in ever-larger numbers. Table II.8 details the number of examined applications (those applications that were complete and were reviewed by an admissions committee) by Florida dental schools in 2009-10 by the ethnicity/race and gender of the applicant. (American Dental Association, *ibid.*)

Table II.8. Number of Florida Dental School Examined Applications by Race and Gender, 2009-2010

	White		Black		Hispanic		Amer. Indian		Asian		Not Specified		Total
School	M	F	M	F	M	F	M	F	M	F	M	F	
UF	404	264	20	61	62	123	4	1	143	173	76	68	1,399
Nova SE	87	74	2	4	35	22	0	0	40	22	33	29	348

In all, 709 males and 690 females had examined applications at the University of Florida in 2009-2010, and 40 and 43 enrolled, respectively. Of those first year students who enrolled, 73 were Florida residents. Also, 197 males and 151 females applied to Nova Southeastern University in 2009-2010 and 48 and 60 enrolled respectively. Of those first year students who enrolled, 55 were Florida residents. The breakdown for first-year enrollment by race and gender in the Florida dental schools are shown in Table II.9. (American Dental Association, *ibid.*) In the creation of its dental degree program, UCF will set goals to exceed minority representation in current Florida dental schools.

Table II.9. First-Year Florida Dental School Enrollment by Race and Gender, 2009-2010

	White		Black		Hispanic		Amer. Indian		Asian		Not Specified		Total
School	M	F	M	F	M	F	M	F	M	F	M	F	
UF	23	20	0	7	6	11	0	0	8	3	3	2	83
Nova SE	32	21	2	4	3	13	0	0	7	21	4	1	108

Numerous dental schools have made significant individual and collective efforts to recruit and retain increased numbers of underserved students. (Andersen RM, *ibid.*) Some of the best practices that are observed in other dental programs are as follows:

- Partnerships with statewide and county initiatives in precollege preparation
- Summer enrichment programs
- Mentors and support groups for first-year dental students
- Pre-dental clinical experiences for undergraduate students
- Development of feeder institutions
- Career fairs on medicine to expose undergraduates to careers in dentistry

- Early admissions decisions for underrepresented populations

UCF plans to study and borrow from these practices, and also engage in an extensive recruitment and retention effort to ensure that a diverse population of students enters the dental program.

At the college level, the following efforts are planned:

- UCF has relationships with several historically black colleges in Florida, particularly Bethune-Cookman University in Central Florida. UCF will recruit at these colleges and encourage students to apply.
- UCF holds graduate fairs, career and professional fairs, and mini-fairs that are specialized for particular medical disciplines. UCF will host several professional fairs throughout the year for those interested in dental careers and will invite undergraduate students to the fair.
- UCF will partner with local dentists' organizations to promote a Career Day for UCF undergraduates to spend a day with a dentist.
- UCF will conduct a special summer enrichment program for those interested in careers in dentistry, similar to what the institution currently does for rising sophomores, to interest them in careers and research in other disciplines.
- UCF currently spends approximately \$700,000 per year to encourage undergraduate students to engage in research activities with faculty. UCF hosts a McNair program as well that encourages underrepresented undergraduate and financially disadvantaged students to pursue advanced training. UCF also has the RAMP (Research and Mentoring Program) that links faculty and students who want to do research and provides fellowships to students for two years to participate in research as well as professional development activities. The annual Undergraduate Research Forum showcases the results of this research and is a very rewarding experience for both faculty members and students. In addition, UCF publishes an online Journal of Undergraduate Research to capture the original contributions of UCF's students. These programs will be particularly attractive to the Pre-Professional group of students, and the College of Dental Medicine will host pre-professional dental undergraduate students in these activities.
- UCF's Minority Engineering and Computer Science Program (MECSP) has demonstrated a commitment to increase the participation of underrepresented students in engineering and computer science, while increasing the number of targeted students who are prepared to enter and complete undergraduate and graduate studies in science, mathematics, engineering, and technology. Engineering is excellent preparation for those preparing for dental school since problem solving and critical thinking skills have already been developed. MECSP operates a continuum of programs, elementary through graduate school, to create awareness and to graduate students in the fields of engineering and science. Currently, the office, in partnership with local school systems, industry, and parents, provides math and science activities for over 1,000 elementary through high school students and their teachers (77 schools).
- The UCF College of Nursing operates 14 Community Nursing Centers where undergraduate nursing students work with underserved and diverse populations. The undergraduate faculty developed a "Student Success" program to provide the diverse undergraduate student body with strategies for success in the program in addition to a pre-nursing course with specific content for a diverse population of students. This will be a model for the UCF College of Dental Medicine.

At the high school level, the following efforts are planned:

- UCF currently partners with local high schools to encourage students to enter careers in engineering and the sciences. The College of Medicine recently established a pipeline program with Jones High School Health Magnet Program. The existing Health-Magnet Programs will be expanded to include those who may be interested in dental careers and additional health-magnet programs will be established.
- UCF will partner with local dentists' organizations to promote a Career Day for local high school students to spend a day with a dentist.
- UCF will invite high school students to university-sponsored graduate fairs, career and professional fairs, and mini-fairs that are specialized to a discipline and to the professional fairs held throughout the year for those interested in dental careers.
- UCF supports a College Reach-Out Program (CROP) administered by the Florida Department of Education. (One of the first CROP programs was piloted by UCF in the early 80's.) CROP is a statewide Florida initiative that is designed to increase the number of students successfully completing postsecondary education. The primary objective of the program is to strengthen the educational motivation and preparation of low-income and educationally disadvantaged students in middle and high school who are otherwise unlikely to seek any form of post-secondary education. Currently, UCF's CROP offers three distinct programs aiding over 440 students annually in preparing for college. Selected students are identified from 15 partnering middle and high schools in Orange and Seminole counties. Year-round CROP activities include providing the following:
 - tutors and instructors in mathematics, English, and writing
 - test preparation instructors for help on FCAT, SAT, and ACT testing
 - spring break college tours
 - monthly educational trips
 - summer residential experience (week stay on UCF campus)
 - leadership exposure
- The UCF College of Nursing will invite high school students in the community to observe dental students engaged in real dental practice in Community Nursing Centers. This will serve as a model for those who might be interested in dental careers.

The university actively seeks to ensure appropriate representation within the faculty, staff, and student body by engaging in outreach efforts to encourage underrepresented class members to apply for enrollment at UCF. To aid the state in the existing and projected dentist shortage crisis, UCF will recruit dental applicants not only from its own programs, but will also recruit where possible from all Florida institutions of higher education. UCF's current programs include outreach to underrepresented students, improvements in accessibility, and proactive efforts to address academic success and graduation.

UCF had a minority student population of 34 percent in fall 2010. UCF was again ranked as one of the top 100 universities for granting graduate degrees to ethnic minority students by *Black Issues in Higher Education*, 2003. Of particular interest is that UCF was ranked 32nd in the nation for its production of health professions and related clinical degrees, 13th for Hispanics and 15th for African-American graduate degrees granted, and 24th for minorities in mathematics. At the doctoral level, UCF was ranked 74th in the nation for producing doctoral degrees for Hispanics. In the new College of Medicine, 45 percent of the first year and 39 percent of the second year students are non-white, non-Hispanic. In all, UCF has made a serious effort to recruit and retain underrepresented minority populations. As

shown in the first section above, the Hispanic population in Orange County and elsewhere in Central Florida continues to outpace all other ethnic groups. There are many opportunities to attract minorities to the UCF dental degree program.

The Pre-Professional Program at UCF will be a major source of applicants to the UCF dental program. This program has a history of both female and minority student success in professional school acceptance (e.g., medical, nursing, dental), demonstrating the ability to diversify Florida's health professions workforce. UCF will continue to work with other Florida educational institutions to enhance the diversity of the applicant pool to the dental school.

As cited in a *Journal of Dental Education* report, the number one reason for underrepresented minority students' choice of dental school was location of the school. (Andersen RM, *ibid.*) By locating the UCF College of Dental Medicine in a geographic zone with large minority populations, the school will better be able to attract and retain a diverse student body. The Florida Department of Health in its *Health Practitioner Oral Healthcare Workforce Ad Hoc Committee Report* notes studies showing that minority dentists tend to practice in minority communities or have a greater percentage of minority patients, (Florida Department of Health, February 2009, *ibid.*) so not only will locating the dental school in Central Florida produce more minority dentists, but these dentists will be inclined to stay in the community and treat larger numbers of the population that have the greatest need.

Janet Ruth Beland
Signature of Equal Opportunity
Officer

8/8/11
Date

III. Budget

- A. Create an Appendix C and provide a business plan for the proposed program from any planning year(s) through the first year of full enrollment. The plan should include coverage of the source of revenues and expenditures associated with the initial creation and the continued operation of the program, including any capital construction assumptions. Use Table 2 in Appendix A to display projected operating costs and associated funding sources for the first year of student enrollment, and for the year in which full enrollment is realized. Use Table 3 in Appendix A to show how any existing Education & General funds will be shifted to support the new program in Year 1. In narrative form, summarize the contents of both tables in the context of the aforementioned business plan, identifying the source of both current and new resources to be devoted to the proposed program. (Data for Year 1 and for the year in which full enrollment is realized reflect snapshots in time rather than cumulative costs.) Indicate whether a special state appropriation will be required to develop and implement the program. If the university intends to seek Market Rate Tuition for the proposed program or operate the program on a cost recovery basis, provide a rationale for doing so and a timeline for seeking Board of Governors' approval, if appropriate.

Business Plan Summary

See Appendix C for the detailed business plan. The proposed Doctor of Dental Medicine degree program in the College of Dental Medicine at UCF will require no new appropriations from the state for the operation of the educational program. The UCF D.M.D. degree program will primarily be supported from student tuition and fees developed using a market-rate model, clinical revenues, and research funding. The business plan assumes the use of an operating lease with a private developer who will construct a Dental Education building. The higher cost of an operating lease was selected to stress the business plan and ensure the revenues generated from operating the dental college were sufficient to cover its costs. UCF is exploring additional options in accordance with the Board of Governor's debt management policy for financing the building, including a bank loan or agreements with contractors interested in financing the construction.

The program and required facilities will ultimately be funded through a combination of the following sources of revenue:

- Student tuition and fees
- Student generated clinical revenue
- Research funding
- Faculty practice funds
- Private gifts and grants

The market rate tuition funding model for the D.M.D. program enables UCF to create a self-sustaining dental education program that will not require state appropriations. The program will attract a local, regional, and national applicant pool that has already demonstrated the interest and ability to pay market rate tuition as previously described in Section II.B of this proposal. According to the American Dental Association 2009-2010 *Survey of Dental Education*, of the 5,089 first year enrolled dental students in fall 2009, 1,690

students were paying tuition at or above the fall 2009 UCF College of Dental Medicine equivalent tuition of \$48,025. (Note that the proposal specifically anticipates a tuition level of \$55,675 per year for class starting in 2014. Using the tuition escalation factor of 3 percent that is used in the proposal, this starting tuition is equivalent to a first-year tuition of \$48,025 in 2009.) These data show that over 33 percent of all newly enrolled dental students are paying tuition above the proposed D.M.D. program market rate. Moreover, in Florida's two dental schools, 49 percent of the students pay tuition greater than the proposed UCF D.M.D. program market rate. Using this approach in the new economic climate will build a dental education program that is self-sustaining, meets the needs of the applicant pool, takes advantage of the growing research and clinical education in Lake Nona, and serves the community.

The following table summarizes the timeline to seek tuition approval from the Florida Board of Governors.

Table III.1. UCF D.M.D. Market-rate Tuition Authority Approval Timeline

Task/Milestone	Anticipated Date
Board of Governors approval of the UCF <i>Request to Offer a Doctor of Dental Medicine Degree</i> and associated budget	November 2011
UCF Board of Trustees Facilities and Finance Committee approval of market-rate tuition	January 2013
UCF Board of Trustees approval of market-rate tuition and associated updates to university regulations	March 2013
Submission of materials for approval by Florida Board of Governors	April 2013
Approval of market-rate tuition by Florida Board of Governors	June 2013
Publication of market-rate tuition in UCF regulations, college website, and other materials	July 2013

The university has received a pledge for a \$10,000,000 gift from a donor (Appendix E1) that will support a significant portion of the planning activities during the first two of three planning years in which the initial faculty and staff are hired, the curriculum is developed, the program receives Initial Accreditation, and the recruiting of the inaugural class is completed. The remainder of the funds will come from university sources. During the first three years after authorization, all efforts will be devoted to more detailed planning and program development and no students will be enrolled. Thus, no student tuition and fee revenue will be available to pay for the expenses during the three planning years as deans and faculty are hired. Startup funds from the \$10 million donation and auxiliary monies from the university will cover expenses during this time. As tuition and fees start being collected in FY15, and clinical revenue from faculty and student clinics is realized, income starts increasing as expense growth starts slowing, and in FY18 the program is expected to be self-supporting.

By the tenth year of instruction (FY24), the new dental education program is projected to enroll 394 students (with a two percent attrition in each incoming class). At that time, the overall expenses in constant 2011 dollars are projected to be about \$31.29 million annually, with about \$11.9 million used to pay faculty salaries and benefits for 57 full-time faculty

members. The total revenue from tuition and fees and clinical revenue is expected to be \$42 million. Revenue from tuition and fees is estimated at \$35.8 million in the tenth year. Most of the fee revenue of \$7.2 million will be used to pay for technology (e.g., laptop), books, and laboratory materials for each student. Other revenues in the tenth year include salary recovery (20 percent for basic science faculty members) from external funding and the student and faculty clinical revenue generated in the Primary Dental Care Clinic and faculty practice. Using this funding model, no state dollars are required.

As described earlier in this proposal, the D.M.D. degree program and the College of Dental Medicine will directly address the projected shortage of dentists in Florida and support UCF's goal of being America's leading partnership university and for enhancing economic development in the Central Florida city-state. As an integral part of the growing medical city in Lake Nona, the new dental college will partner with the community in providing needed dental care to low-income citizens in its 200-chair Primary Dental Care Clinic, where students develop their dental skills under faculty supervision. It will partner with the UCF College of Medicine in promoting dental health and interprofessional education and with other university colleges and research institutes to enhance the state-of-the-art in dental care. It will attract faculty and staff members, students, and additional clinical partners to build on the already growing economic impact being realized in Lake Nona. Partnerships are a defining characteristic of UCF as an institution.

Through planned construction of a new Dental Education building on the UCF Health Sciences Campus at Lake Nona, a state-of-the-art clinical training facility will be created. Within this building, there will be a 200-chair clinic, three large classrooms, a simulation laboratory, faculty practice and patient areas, student areas, and administrative and faculty offices.

- B. If other programs will be impacted by a reallocation of resources for the proposed program, identify the programs and provide a justification for reallocating resources. Specifically address any potential negative impacts that implementation of the proposed program will have on related undergraduate programs. Explain what steps will be taken to mitigate any such impacts. Also, discuss any potential positive impacts that the proposed program might have on related undergraduate or graduate programs.**

No other programs at UCF will be impacted by a reallocation of resources. No reallocation from existing programs to the dental college is proposed and no existing E&G funds will be used to develop this program. The college and program will be self-supporting by 2018. A loan from university auxiliary funds will be used to cover start-up of the program, and this will be fully paid back to the university in FY24. Table 3 located in Appendix A clearly shows no reallocation will occur.

- C. Describe what steps have been taken to obtain information regarding resources (financial and in-kind) available outside the institution (businesses, industrial organizations, governmental entities, etc.). Describe the external resources that appear to be available to support the proposed program.**

The UCF plan for the D.M.D. degree program includes a \$10,000,000 gift from private funds designated to support the new dental program (see pledge form from donor in Appendix E1). As described in the business plan, the remaining funds will come from university

auxiliaries, research, clinical revenue and tuition and fees. The university leadership and development office will continue to actively seek funding from private gifts.

The university leadership has received multiple letters pledging support (see Appendices E2 and E3). A summary of the support letters to date is provided in the following Table III.2:

Table III.2. Letters of Support Related to Establishing a D.M.D. Program at UCF

Clinical and Research Partnerships		
Brevard County Health Department	Heidar Heshmati, M.D., P.P.H., Ph.D.	Director
Brevard Health Alliance	Lisa Gurri	Chief Executive Officer
Central Florida Family Health Center	Leslie Smith, D.O.	Chief Executive Officer / Chief Medical Officer
Central Florida Medical Affiliates	Robert C. Alexander	Executive Director
Central Florida Oral & Maxillofacial Surgery	Wilbur M. Davis, D.D.S.	
Community Vision	Donna Sines	Executive Director
Dental Care Access Foundation, Inc.	Julie Kestler	Executive Director
Health Care Center for the Homeless, Inc.	Bakari F. Burns, MPH, MBA	Chief Executive Officer
Health Council of East Central Florida	Kenneth Peach	Executive Director
Nemours Children's Hospital	Roger Oxendale, MBA	Chief Executive Officer
Orange County Health Department	Kevin Sherin, M.D. and Maria D. Demas, D.D.S.	Director Executive Dental Director
Orlando Health	Sherrie Sitarik	President/ Chief Executive Officer
Primary Care Access Network	Margaret Brennan	PCAN Administrator
Sanford Burnham Medical Research Institute	Daniel Kelly, M.D.	Scientific Director
Seminole County Health Department	Michael J. Napier, M.S.	Administrator
Shepherd's Hope	Cathy Benson	President
Space Coast Foundation	Johnette Gindling	Executive Director
VA Medical Center	Timothy Liezert	Medical Director
Economic Development		
C.T. HSU & Associates, P.A.	C.T. Hsu, P.A.	President
Central Florida Partnership	Jacob V. Stuart	President
City of Orlando Major	Buddy Dyer	Mayor
Economic Development Commission	Rick Weddle	President / Chief Executive Officer
G&T Conveyor Company, Inc. , and Board member for the Central Florida Partnership	Paul W. Shaffer	Chief Financial Officer
Hyatt Regency Orlando International Airport	Patricia J. Engfer	General Manager

Orange County Mayor	Teresa Jacobs	Mayor
Seminole County Resolution	Brenda Carey	Chairman, Board of County Commissioners
Tavistock Group	Rasesh Thakkar	Senior Managing Director
Visit Orlando	Gary Sain	President / Chief Executive Officer

INSTITUTIONAL READINESS

IV. Related Institutional Mission and Strength

A. Describe how the goals of the proposed program relate to the institutional mission statement as contained in the SUS Strategic Plan and the University Strategic Plan.

Consistency with UCF Goals

The Doctor of Dental Medicine degree program and College of Dental Medicine at UCF will create economic benefit, produce about 98 new D.M.D. graduates each year, contribute to the creation of new dental and surgical procedures, and contribute to the health care of the communities in Central Florida. The proposed program is consistent with UCF's mission statement, goals, and strategic initiatives. The mission statement says that

The University of Central Florida is a public multi-campus, metropolitan research university that stands for opportunity. The university anchors the Central Florida city-state in meeting its economic, cultural, intellectual, environmental and societal needs by providing high-quality, broad-based education and experienced-based learning; pioneering scholarship and impactful research; enriched student development and leadership growth; and highly relevant continuing education and public service initiatives that address pressing local, state, national, and international issues in support of the global community.

Development of a dental program at UCF is consistent with the university's mission to serve its surrounding communities and enhance the economy and is also consistent with the following UCF goals:

Goal 2: Achieve international prominence in key programs of graduate study and research.

Goal 3: Provide international focus to our curricula and research programs.

Goal 4: Become more inclusive and diverse.

Goal 5: Be America's leading partnership university.

The large, diverse, and rapidly growing population in Central Florida provides the patient population required for high-quality dental education. It also provides another opportunity for UCF to serve its surrounding community and region. UCF has chosen to accomplish this task through partnerships that are of value to both the university and its surrounding community.

The goals for the new Doctor of Dental Medicine degree program and the College of Dental Medicine are the following:

- Create economic benefit to the region.
- Enhance scientific research of faculty attracted to the university because of the D.M.D. program.
- Provide high-quality clinical services to enhance health care in Central Florida.
- Provide cutting-edge training for creating 21st century dentists by integrating information technologies and virtual simulation into the education and research of the faculty and students in the College of Dental Medicine.
- Create more culturally competent dentists.

The following describes each of these goals in more detail:

Create Economic Benefit to the Region. A College of Dental Medicine is a necessary component of the UCF Health Sciences Campus at Lake Nona and will help to realize and exceed the projected \$7.6 billion in annual economic activity by 2017.

Enhance Scientific Research. The Doctor of Dental Medicine degree program will focus on teaching students to become dentists within a research intensive environment. Research funding at UCF exceeded \$133.3 million in FY10. A dental program at UCF will lead to increased opportunities in federal funding in areas of strategic importance to the state, particularly in clinical research. One of UCF's goals is to develop key areas of excellence in research and graduate education and to become nationally and internationally prominent in these areas. Biomedical and health sciences are key areas for the university, as evident by their inclusion in UCF's Strategic Initiatives that form the basis of UCF's Strategic Plan. Achieving prominence in this area will enhance the reputation of UCF and the state, bring more research funding to UCF, bring more creative opportunities to our faculty and students, and increase the creation of jobs.

Provide High-Quality Clinical Services in Central Florida. A College of Dental Medicine at UCF will attract dentists and other health practitioners to practice in Orlando. The addition of more clinical and dental opportunities anticipated by our health care system partners over the next 10 years will provide more opportunities for dental training, provide increased opportunities for Central Florida residents to access high-quality dental care, and lead to an increase in dentists who practice in the region. Dental students and faculty members within the dental college will provide dental care for underserved populations in Central Florida through its 200-chair Primary Dental Care Clinic and required service learning projects. Many Central Florida clinics are welcoming the opportunity to partner with the new College of Dental Medicine (see Appendix E2).

Integrate Information Technology and Virtual Simulation into Dental Education and Research. Another key area of excellence identified in UCF's Strategic Initiatives is information technology. UCF has the first College of Optics and Photonics and the only one of three graduate optics programs in the United States, and one of three doctoral modeling and simulation programs in the United States. These partnerships will support UCF's desire to develop state-of-the-art virtual simulation for training of dental students, dentists, surgeons, and others.

UCF's simulation faculty members are currently creating virtual reality environments for training rehabilitation patients, their families, and caregivers to prepare them for a more independent life. They have created training programs for nursing students to gain clinical skills while using patient simulators. The digital media degree programs (bachelor of arts, master of arts, and master of fine arts) at UCF are very strong, and the faculty members in digital media are creating new educational tools that can be used for the training of dental students. Realistic visual imagery combined with audio and tactile stimulation are creating training tools that are effective as learning tools, but are also entertaining and have great potential for knowledge retention.

The Film and Digital Media faculty members will be active participants in the education and training of the D.M.D. students. Through UCF's Interactive Performance Laboratory and the Florida Interactive Entertainment Academy (FIEA), UCF is a leader in designing responsive, dynamic systems where once there were static environments. Film and digital media can address some of the current complaints involved in training dental students – such as dental

students not understanding how to work in a health care team, not knowing how to operate a dental practice, and not understanding the various cultural and social aspects of health care. FIEA is focused on using electronic gaming applications in nontraditional game settings. The faculty will work on creating games that will enhance the education of dental students by providing a more dynamic learning environment.

The new state-of-the-art Anatomy Lab in the UCF College of Medicine will be available for use by the D.M.D. program. The UCF College of Medicine's Anatomy Lab provides a facility for doctors from around the world to receive training about new medical techniques, instruments and procedures. Through this training, local physicians have the opportunity to gain hands-on experience with the latest medical equipment and technology, thus making them more up-to-date, and have the opportunity to interact with expert faculty members from around the world and develop networking and consultation relationships without ever having to leave home. The Anatomy Lab's state-of-the-art technology includes (a) a camera at the center of the room that allows the instructor to conduct procedures and broadcast them live to each of the lab's 22 dissection tables (b) a 32-inch finger-touch screen at each table that has been specially designed for the UCF College of Medicine by Mitsubishi, and (c) screens at each table equipped with MAC computers, allowing doctors to get information from e-resources in the Health Sciences Library, the Internet and instructional software. Recently the Anatomy Lab hosted the "3rd Annual Current Techniques in Spinal Deformity Surgery" course put on by Biomet Spine Company for approximately 40 spinal surgeons, where physicians had the opportunity to gain instruction by 13 surgical faculty members on the latest spinal surgery techniques and devices and to use those devices on cadavers. The Anatomy Lab training on the fourth floor was broadcast to classrooms on the first floor of the building to physicians receiving lectures. The Anatomy Lab is now working with other entities to provide the following training:

- The American Academy of Implant Dentistry wants to use the Anatomy Lab to provide ongoing training to dentists in the area.
- Local hospitals are interested in using the Anatomy Lab to provide anatomical updates for their residents.
- Synthes Spine Company would like surgical training in the future.

Create More Culturally Competent Dentists. One of UCF's five goals is to become more inclusive and diverse. UCF has an excellent track record in reflecting the underserved population of its community and is successful in recruiting, attracting and retaining these students. The UCF program will aggressively recruit underrepresented students to enter dental careers, and will work with the dental community in presenting opportunities to students through establishment of pipeline programs, dental career fairs and dental career days.

UCF will use a variety of approaches to promote cultural sensitivity and competence throughout the dental school experience, including coursework, small group discussions, and clinical experiences. Students, faculty, and staff will participate in cultural sensitivity workshops with mandatory cultural training. Cultural sensitivity will be incorporated into the curriculum. Health promotion will be discussed at various life stages and from various cultural perspectives. One course discusses the interactions of human beings with their social environments, and integrates human behavior, public health, epidemiology, and ethics.

Students will be assigned to small groups that will meet regularly throughout the dental education experience and, thus, will be exposed to a learning environment that will promote

the understanding and appreciation of individual differences. Students will be evaluated on a regular basis regarding their progress toward cultural sensitivity. Students will be encouraged to participate in summer experiences and international experiences that will allow them to become immersed in a culture different from their own. They will also be engaged in service learning opportunities, providing care to those who are underserved.

In summary, the UCF D.M.D. degree program is consistent with and supports UCF's goals and strategic initiatives. This program is also consistent with state goals as described in the next section.

Consistency with SUS Goals

The proposed dental degree program at the University of Central Florida will assist the Florida Board of Governors in addressing the growing shortage of dentists in the state, being responsive to the community, enhancing the economy, and increasing the national and international prominence of the State University System.

The Board of Governors established far-reaching degree production goals in its Strategic Plan. The State University System goals focus on providing access, meeting the workforce needs of the state, and building world-class academic programs and research capacity. Health care is one of the largest industries in the State of Florida and Floridians spent an estimated \$95.2 billion on health care expenses in 2004, including \$4.5 billion in dental care. Employment in the health care sector in 2002 approached 750,000 people. In fact, Florida's health services sector employs more workers than the state's entire business and finance, insurance, and real estate sectors combined.

Florida's population is projected to grow from 18.8 million in 2009 to 23.8 million in 2030 and may overtake New York as the third most populous state in the 2030 census. In 2009, the six surrounding counties (Orange, Seminole, Osceola, Volusia, Lake and Brevard) had a combined population of 3.1 million, or nearly 17 percent of the state's population. These population increases put pressure on health care services. Not only is the population increasing, but it is aging and increasing in the number of underrepresented minorities. The estimates for the numbers of dentists needed through 2050 that were presented previously in Section II.A. of this proposal respond directly to these population projections and fill the gap in the Florida Department of Health *Report on the 2009-2010 Workforce Survey of Dentists*.

The nation's population will age, with those aged 65 and older becoming 19 percent of the population, up from 13 percent in 2010. Florida's population will also age, with the number of individuals aged 65 and over increasing by 59 percent between 2004 and 2020. Nearly 26 percent of the state's annual personal income comes from dividends, interest, and rent, and another 6.6 percent from retirement benefits, resulting in a total of 32.5 percent from these two sources. Given the economic impact of the increasing number of retirees migrating to the state, Florida cannot afford to lose its share of the nation's retirees. Since individuals over age 65 access health care more frequently than those under 65, it is crucial that high-quality health care is readily available in order to maintain Florida's appeal to migrating retirees. The state has identified health care as being extremely important to the economy of Florida because of its growing and aging population.

Within the framework of the Board of Governors strategic plan, specific statewide goals for degree production are established in targeted program areas by degree level through the 2012-2013 academic year. The Board of Governors' target for the number of degrees produced by professional programs (which also include law, medicine, biomedical, veterinary medicine, dentistry, and pharmacy) in 2012-2013 is 2,167 degrees per year. The

Board of Governor's strategic plan aligns with Florida's workforce and economic development plans. *The New Florida Initiative*, the strategic plan of the Board of Governors is a call for all state universities to together transform Florida's economy. It calls for "true and holistic transformation [that] will also involve the areas of medicine and health care, finance, insurance, professional services, education and the arts, which are the foundation of a modern society." *The New Florida Initiative* will be used to direct resources to these important needs in Florida. The College of Dental Medicine will support *The New Florida Initiative*, but will not require resources from the state.

Creating the Strategy for Today's Needs and Tomorrow's Talent (www.workforceflorida.com/Strategy/index.php) is the strategic plan of Workforce Florida and identifies life sciences/health care as a targeted industry section. Joe Kulenovic from Enterprise Florida, Inc. is quoted as stating that "Advances in medical technology, combined with an aging population will be the reason for the fast growth in the healthcare industry." Workforce Florida's aspirations for Florida are to play a leading role in creating: "a diversified economy based on confident, satisfied and thriving enterprises in our legacy and target industry clusters (and resulting value job creation); an innovation and knowledge-based economy; and a top-notch, global reputation for talent." Creating a dental college in Central Florida will bring highly trained faculty and staff members to the area (creating jobs from those with a global reputation for quality) who will invest in providing advanced dental health care (furthering our knowledge-based economy) for our citizens.

In the *Roadmap to Florida's Future* (www.eflorida.com/roadmap), Enterprise Florida echoes these comments and states that "Florida must continue to diversify its economy by focusing on higher value-added, innovation-driven growth" and further states that "education and world-class talent is economic development." Enterprise Florida has also reiterated the technology sectors, including life sciences.

In addition to degree production goals, the Board of Governors set goals to build world-class academic programs and research capacity. Establishment of a dental degree program at the University of Central Florida will further serve to support this goal. The implementation of a dental college in addition to the existing medical college at UCF will increase UCF's stature as a world-class research institution and help realize the vision for creating a world-class academic health center in Lake Nona and add to the state's portfolio.

The Board of Governors' goals also include objectives to increase access to education by a diverse student population. The proposed dental degree program will use innovative and aggressive techniques to assist underrepresented students in obtaining the prerequisites for professional degree study. UCF's commitment to this goal is demonstrated by the fact that in fall 2010, minorities made up 34 percent of UCF's total enrollment, 9.6 percent of the enrollment being black and 15.7 percent being Hispanic. Another demonstration of this commitment is the recent development of a pipeline program by the UCF College of Medicine (the Health Leaders program with the Medical Magnet program at Jones High School in Orlando).

B. Describe how the proposed program specifically relates to existing institutional strengths, such as programs of emphasis, other academic programs, and/or institutes and centers.

University Strengths

In its short 48-year history the University of Central Florida has grown in size, stature and research significance. In fall 2010, the university ranked as the second largest public university in the nation with more than 56,000 students. In fiscal year 2010, UCF professors received \$133.3 million in research funding and in 2010 the university was placed in the highest category of research universities by the Carnegie Foundation for the Advancement of Teaching.

The University of Central Florida provides one of the nation's best values in education, according to a *Kiplinger's* report. UCF ranked 36th, advancing six spots from its 2009 position on the magazine's annual 100-school list of best-value U.S. public colleges and universities. The ranking combines economic value with an outstanding education, as measured by SAT or ACT scores and graduation rates. UCF's fall 2010 freshman class averaged 1237 on the SAT and included 46 National Merit Scholars, a total that ranks among the top 50 universities in the nation.

UCF continues to receive noteworthy national rankings, including recognition last year from *U.S. News & World Report* as a top 20 national university for students graduating with the least amount of debt, in the magazine's "Great Schools, Great Prices" category. *U.S. News & World Report* also named UCF one of the top five national universities to watch. UCF was the only Florida school listed in the category "Top Up-and-Coming Schools," which includes national universities that "recently made the most promising and innovative changes in academics, faculty, students, campus or facilities." The magazine's *Best Graduate Schools* guide ranked five UCF programs among the nation's best in their fields: Engineering, Education, Speech-Language Pathology, Public Administration and Computer Science all made the top 100. UCF's engineering programs led the way and ranked #2 in Florida.

Strengths at the UCF College of Medicine and Lake Nona Campus

The University of Central Florida is firmly committed to the economic development associated with the UCF Health Sciences Campus at Lake Nona. The 50-acre campus is located 20 miles from the Orlando campus and is only minutes away from the Orlando International Airport. The campus is envisioned to become a comprehensive health sciences campus with a complete set of health professions programs in a setting that includes interprofessional education, research laboratories, clinics, and hospitals. The proposed Doctor of Dental Medicine and College of Dental Medicine is the next step toward that vision.

The new UCF College of Medicine, approved in 2006, is located at the UCF Health Sciences Campus at Lake Nona. The M.D. program successfully received Provisional Accreditation from the Liaison Committee on Medical Education in June 2011 and is on track for Full Accreditation in 2013. The college has 480 faculty and staff members and almost 1,300 volunteer faculty members. Currently there are 180 students enrolled in the M.D. program representing the first three classes. This number will grow to 480 students over the next few years. The college is currently creating Pegasus Health, a faculty clinical practice serving UCF and the community. The UCF College of Medicine Medical Education building has an Anatomy Laboratory that will be shared with the D.M.D. program. In addition, the Harriet

F. Ginsburg Health Sciences Library will house the dental library, and the College of Medicine will also leverage some existing staff members to provide IT support, and other administrative needs to support the College of Dental Medicine.

The Burnett College of Biomedical Sciences, established in 2004 and now a school in the College of Medicine, helps to grow and promote UCF's interests in biomedical research with its focus on the molecular and genomic basis of diseases and therapeutics. The Burnett School of Biomedical Sciences and its educational programs (Ph.D. in Biomedical Sciences, M.S. and B.S. in Biomedical Sciences, M.S. and B.S. in Biotechnology, and B.S. in Medical Laboratory Sciences) focuses research on cancer, cardiovascular disease, neurodegenerative diseases and infectious diseases and these will have synergy with the dental college. Oral health is a particular interest of some faculty members, as is the transfer of research into clinical and population-based studies that will provide information to prevent, diagnose, and treat oral diseases. Clinical faculty and biomedical researchers would like to speed up the process of transfer of research to medical and dental practice.

Faculty members in the College of Medicine publish in prestigious journals in biomedical sciences and their scientific accomplishments have been covered by national and international media. The research that UCF currently performs in the biomedical sciences will attract top basic science faculty in the D.M.D. program to participate in the health sciences campus and may also provide research opportunities to dental students as part of their electives. The College of Dental Medicine will expand opportunities to engage in clinically related research in cooperation with its partner hospitals, community centers, and public health agencies. As noted by Dr. Dan Kelly, Scientific Director of the Sanford-Burnham Medical Research Institute at Lake Nona, in his letter of support for the dental college (see Appendix E2), "Dental School, juxtaposed to SBMRI and the Burnett School of Biomedical Sciences at UCF, could provide exciting new opportunities for breakthrough basic and clinical research programs related to dental medicine." New dental faculty will have the opportunity to work on ongoing research projects at UCF. More faculty members will be at UCF conducting increased research, and UCF expects to increase its research infrastructure and funding with the addition of the College of Dental Medicine.

Strengths in Other Academic Programs

The Department of Psychology grants both the B.A. and B.S. in Psychology degrees, M.A. and M.S. in Clinical Psychology, and the Doctor of Philosophy tracks in Applied Experimental and Human Factors Psychology, Clinical Psychology, and Industrial and Organizational Psychology. The department currently has 46 faculty members who have 31 active research projects. Current medically-related research includes patient safety, teamwork in medical settings, and emergency medical procedures, all of which would be relevant to the D.M.D. program. Psychology faculty members are conducting research to improve the patient safety culture at Florida Hospital. UCF's digital media and simulation faculty members will contribute to this research, creating teamwork, and emergency delivery training tools to simulate real-world health care environments.

The College of Nursing offers the B.S.N., M.S.N., D.N.P, and the Ph.D. in Nursing degrees. The nursing program is accredited by the Commission on Collegiate Nursing Education. Laboratory space consists of instructional and research laboratories with faculty conducting research on breast cancer, patient safety, oncology nurse training, endotracheal tube cuff pressures, and home versus center weight loss after menopause. The school has 38 faculty members who have 8 ongoing research projects and conducted more than \$400,000 of research in FY09. The College of Nursing also has an extensive network of agency partners

in the community and directs 14 community health centers throughout Central Florida to deliver health education to Central Florida citizens. The nursing faculty's research will be enhanced with the infusion of dental school faculty with supporting research agendas. Dental faculty and students will likely use the community health centers as well as Primary Dental Care Clinic in the Dental Education building to provide dental care for underserved citizens in Central Florida.

The Chemistry Department faculty members are very involved in health-related research on biophotonics, investigating the photochemistry and photophysics of organic materials. Rapid sensor detectors are being developed for micro-organisms that can cause disease. Protein sensors are also an area of research. New drug and drug-delivery agents to treat cancer, poisoning, tuberculosis, and malaria are also being studied, and technology is being developed to generate microcapsules for drug delivery. Also, X-ray Crystallography and NMR spectroscopy are being used to develop novel inhibitors that will allow a structure-based drug design to treat disease.

Other health related programs at the university will be further supported by the implementation of a dental degree program, and the program will be strengthened by the pre-established relationships of these programs to the Greater Orlando community. Such programs include those in the School of Social Work and the Department of Health Professions (Physical Therapy and Health Services Administration). UCF has a broad range of academic degree programs and tracks that offer a vast array of potential relationships for research and academic collaboration with the proposed dental college.

Strengths in Undergraduate Research

UCF is engaged in the continued development and support of its many undergraduate and graduate education programs. Undergraduate programs will be strengthened, particularly in the basic sciences, as a result of having a dental college. UCF envisions a very positive impact on all of its existing undergraduate and graduate programs from the establishment of a new dental school. While primarily intended to support the new dental curriculum, expanded faculty, library, and clinical resources will have a positive impact on existing programs in the natural and clinical sciences and related areas.

The institution anticipates the development of various opportunities for undergraduate students to be exposed to dental research, thereby enriching current program offerings. UCF already provides \$700,000 per year for research opportunities, so that undergraduate students can work with faculty in the pursuit of research and other creative activities. It is expected that more opportunities to engage in exciting research will be available to UCF's undergraduate students with faculty from the College of Dental Medicine. The biomedical sciences bachelor's programs, part of the Burnett School of Biomedical Sciences, have over 2,400 undergraduate students, many of whom plan to attend a professional school, such as dentistry. Based on experiences at universities that already have dental education programs, UCF expects that its undergraduate programs will become an even more attractive option for the best students in the state once the dental school is established. Thus, the proposed dental degree program is expected to support and enhance existing university strengths as well as programs of emphasis, health-related programs, and numerous institutes and centers at the university.

Strengths in Research

UCF has achieved national prominence through competitively funded grants, achieving total funding in excess of \$133.3 million in FY10 and has developed substantial research

expertise and faculty. UCF is now designated by the Carnegie Foundation for the Advancement of Teaching as a comprehensive university with very high research activity (the highest category for research). In 2009-2010, UCF received \$75.8 million in federal funding, a key indicator of strength for universities nationwide. That represents a 27 percent increase over the previous year's total. In addition, a record 41 UCF researchers received \$1 million or more in grant funding.

The university has focused its technical development on key institutes and centers that include the Institute for Simulation and Training, Center for Research and Education in Optics and Lasers, Florida Photonics Center of Excellence, Florida Solar Energy Center, Advanced Materials Processing and Analysis Center, Biomolecular Science Center, and NanoScience Technology Center.

In FY08, eight UCF faculty members received NSF CAREER awards. UCF has built a national reputation as a leader in research commercialization. Over the last three years the power of patents earned by UCF researchers has been ranked among the top ten in the nation four times. In September 2010, UCF ranked eighth in the Patent Scorecard for universities issued by the Patent Board™. In 2009, UCF moved up from seventh place to third place in the nation for the strength and impact of its patents as ranked by IEEE, the world's leading association for the advancement of technology. Both IEEE and the Patent Board™, rated UCF in the top ten for patent strength in 2008. Other universities in these top ten lists include the California Institute of Technology, Harvard University, Massachusetts Institute of Technology, Rice University, Stanford University, University of California, the University of Texas, and University of Wisconsin.

UCF has successfully parlayed high quality research results into company creation with entrepreneurial training through the Center for Entrepreneurship and Innovation, the Venture Lab, and local entrepreneurial talent. Growth of those new companies is supported by the nationally recognized UCF Business Incubation Program, the National Entrepreneur Center, and the state of Florida's GrowFL program administered by UCF.

The UCF Business Incubator Program (UCFBIP) began ten years ago and it has expanded to nine locations throughout Central Florida. The UCFBIP's 100 client companies and 300 graduate companies have created more than 1,600 jobs, attracted approximately \$170 million in investment funds, and generated in excess of \$200 million in annual business activity.

In addition to research in the College of Medicine, research from other colleges, departments and programs will also be strengthened through a dental degree program at the university. The Department of Psychology faculty members are currently engaged in a number of medically related research projects, such as the study of eye movement in schizophrenic patients, brain implants for patients with Parkinson's disease, alcohol education and prevention projects, and ADHD. These are timely and important topics in the U.S. and increased collaboration with the new psychiatry faculty members and those basic science faculty members studying neurodegenerative diseases is expected.

Strengths in Interdisciplinary Research in UCF's Centers and Institutes

Many of UCF's centers and institutes will also be enhanced through the addition of a dental degree program, including the Biomolecular Sciences Center in the College of Medicine, the Advanced Materials Processing and Analysis Center, the NanoScience Technology Center, the Institute for Simulation and Training, and the College of Optics and Photonics' and its

Center for Research and Education in Optics and Lasers and its Center of Excellence in Photonics.

These colleges, centers, and academic programs will provide instruction and research opportunities for students and faculty members involved in the dental college, particularly since many of the faculty working in these programs and centers are currently actively engaged in health-related research. Some relevant examples include the following:

- Simulated dental procedures
- Nanoscience and drug delivery
- Mechanized microsurgery
- Customized laser microchips
- Miniaturized transducers
- Laser fabrication of structures in bio-compatible materials
- Advanced X-ray imaging techniques
- Development of liquid crystal lenses
- Infrared imaging
- Optical Coherence Tomography imaging technology
- Non-intrusive diagnostic imaging systems
- Cardiovascular disease
- Infectious diseases
- Neurodegenerative diseases
- HIV
- Patient safety issues
- Health care teamwork enhancement

Biomedical Research and Education

The interdisciplinary Ph.D. in Biomedical Sciences combines faculty from the College of Medicine's Burnett School of Biomedical Sciences, and the departments of Chemistry and Biology in furthering biomedical science and research. Research in the Burnett school has focused on the areas of microbiology, immunology, infectious disease, molecular cardiovascular biology, neurobiology, molecular biology, molecular parasitology, biotechnology, oncology, oral health, and nanobiology. Annual research funding exceeded \$11 million in FY09. The Burnett Biomedical Sciences building on the UCF Health Sciences Campus at Lake Nona is a state-of-the art 198,000 square feet facility completed in 2010 that houses faculty research groups, including postdoctoral researchers, graduate students, and research technicians.

Materials Science Research and Education

UCF has strong materials science and engineering research and education programs. Both masters and doctoral programs in Materials Science and Engineering are available and are supported by an interdisciplinary research center, the Advanced Materials Processing and Analysis Center (AMPAC).

AMPAC excels in the development, processing and characterization of advanced materials, including biomaterials that could be used by dentists. Much of the \$3.1 million in research generated funding during FY09 has medically-related applications. Applications of current research are related to neurodegenerative diseases. Expertise in nanotechnology of this group will directly translate to clinical trials of new products made with bio-compatible materials.

NanoScience Technology Center

The NanoScience Technology Center was established as a center in April 2005 and in FY09 conducted \$3.4 million in research. Its mission is to integrate multidisciplinary expertise in nanoscale science and technology in order to acquire knowledge, educate students, create new technology, promote industrial development, as well as to act as a unifying force for interdisciplinary research at UCF. One of the primary research areas for the center is bionanotechnology and its application to biomedical research. This center works particularly closely with AMPAC on materials research at the nano level.

UCF is focusing on three primary areas of application of nanoscience to biomedical research within the NanoScience Technology Center. These areas are in vitro systems, controllable drug delivery systems, and nanoparticle interactions with cells. New carrier compounds are being developed that carry a drug to a defined release point within the body, aiding drug delivery. Nanocrystals are being created that can remove harmful substances from the body, providing therapeutic applications in cancer, shock, cardiovascular disease, and infection.

Modeling and Simulation Education and Research

The university has one of only three modeling and simulation doctoral programs in the U.S. In addition, over 80 faculty members conduct more than \$16.1 million in research annually (FY09) in simulation. Also, UCF is home to the Institute for Simulation and Training, an interdisciplinary research institute that performs leading edge basic and applied research in the art and science of simulation and actively supports the university's simulation education initiative. Faculty primarily from psychology, engineering, digital media, and computer science are at work on using simulation and training for medically related applications. The use of simulation in training dentists is pervasive and our strengths at UCF in this discipline will enable state-of-the-art training to our students. The College of Dental Medicine will greatly enhance these research efforts and increase the integration of technology research with medically related research.

Optics and Photonics Education and Research

The College of Optics and Photonics offers masters and doctoral programs in optical science and engineering. It is only one of two colleges of Optics in the country and was the first one established. Its mission is to provide the highest quality education in optical science and engineering, enhance optics education at all levels, conduct scholarly fundamental and applied research, and aid in the development of technology-based industries throughout Florida and the nation. It had external funding of \$10.3 million in FY09 and has been recognized as one of the top optics academic programs in the country.

The college is home to two research centers: the Center for Research and Education in Optics and Lasers and the Center of Excellence in Photonics. The research conducted in these centers will be enhanced through research associated with a College of Dental Medicine. Researchers are using spectroscopy, infrared imaging, light-emitting diodes, luminescence spectroscopy and Optical Coherence Tomography in medically-related applications. A novel optical technique for in vivo measurement of blood viscoelasticity has been created to allow immediate monitoring of trauma patients. Faculty are developing special three-dimensional structures in bio-compatible materials using ultra-fast laser systems for ophthalmic and surgical applications and using high-resolution X-ray imaging techniques to study single cells. High resolution transmissive liquid crystal spatial light modulators are being used to control lens foci. These areas will benefit dental research.

Florida Interactive Entertainment Academy and Interactive Performance Laboratory

UCF has bachelor's and master's programs in Film and Digital Media, and a master of fine arts program in Film. The faculty in film and digital media work closely with faculty in Theatre, Psychology, Modeling and Simulation, and Computer Science to provide dynamic tools that assist other disciplines in their education and research. The Film and Digital Media faculty will be active participants in the education and training of UCF D.M.D. students. Through UCF's Interactive Performance Laboratory and Florida Interactive Entertainment Academy (FIEA), the university is a leader in designing responsive, dynamic systems that before were static environments. Film and Digital Media can address some of the current complaints involved in training dental students—for example, that dental students do not understand how to work in a health care team, do not know how to operate a dental practice, and do not understand the various cultural and social aspects of health care. FIEA is focused on using gaming applications in nontraditional game settings and the faculty can create several games that will enhance the education of dental students by providing a more dynamic learning environment. A teamwork game may be helpful for dental students in understanding the roles of other health care providers and how to work effectively to treat patients. The scenario would involve nurses and other health care professionals (physicians, lab technicians, insurance companies, etc.), who are programmed to respond to a particular patient situation. The responses of the characters are interactive, so that a decision that is made in the scenario will affect the outcome. UCF's Psychology faculty will be interested in studying and programming into the scenario common human responses to real-world team situations that affect dental care. Another possible application is the dental business practice game, where dental students can simulate managing a real-world office and its staff to deliver patient care.

Strengths with External Partners

A dental college at UCF is very important to the Central Florida community since it will attract top quality faculty to dental research, enhancing the clinical studies and evaluations that can be accomplished with two of the largest hospital systems in the nation. Another significant resource for clinical education of dental students in Orlando is the Orange County Health Department, which has had a long-standing and highly effective working relationship with UCF. Many Central Florida clinics (e.g., Brevard County Health Department, Brevard Health Alliance, Central Florida Family Health, Community Vision of Osceola County, Dental Care Access, Health Care Center for the Homeless, Inc, Health Council of East Central Florida, Orange County Health Department, Primary Care Access Network, Seminole County Health Department, Shepherd's Hope, and Space Coast Foundation) have written letters of support (see Appendix E2).

The College of Nursing has hundreds of (650) active affiliation agreements with various community health care agencies, including the Bithlo Community Center, Head Start, Healthy Start, Loaves and Fishes of Apopka, the Hannibal Community Center in Winter Park, mental health agencies, long-term care facilities, dentists' offices, the Park Place Behavioral Center in Oak Ridge, and 14 community nursing centers located in different communities throughout Central Florida (List is available upon request).

In conclusion, the implementation of a dental degree program will support and enhance the existing programs of emphasis of the university, further the research efforts of the numerous centers and institutes of the university, and complement activities with external partners.

C. In the table below, delineate the planning process leading up to submission of this proposal. Include planning activities, listing both university personnel directly involved and external individuals who participated in planning.

While specific discussions concerning the establishment of the dental school at Lake Nona Campus began in 2010 (as noted in the table below), the following significant events that took place earlier to create a strong basis for the health sciences campus:

- In 2001, UCF created the Center for Biomolecular Sciences and hired faculty members to conduct basic science and biomedical research.
- In 2004, the Burnett College of Biomedical Sciences was created with a \$10 million gift (state matched to \$20 million); President Hitt talks with Board of Trustees about the need for private fund raising to promote biomedical research at UCF.
- In 2006, the College of Medicine was approved by the Board of Governors and initial plans for the UCF Health Sciences Campus at Lake Nona were developed showing multiple programs and research facilities at the Lake Nona campus.
- Also in 2006, the School of Nursing became the College of Nursing.
- In 2007, the Burnett college became a school in the College of Medicine.
- In 2010, the College of Medicine's Burnett Biomedical Science building and Medicine Education building opened on the Lake Nona campus.

Table IIV.1. Planning Process for Preparing D.M.D. Program Proposal

Date	Participants	Planning Activity
Various times in 2010	UCF V.P. for Medical Affairs Tavistock Group Leadership UCF President	Initial discussions with Lake Nona concerning the establishment of a dental college
December 12, 2010	UCF V.P. for Medical Affairs Consultant Tavistock UNC School of Dentistry	Preparation of top-level analysis to determine resources needed for self-supporting dental school
December 13, 2010	UCF President UCF V.P. for Medical Affairs Consultant Tavistock	Meeting to discuss the financial model
December 2010 – January 2011	UCF V.P. for Medical Affairs	Discussions with deans at other dental schools
January 6, 2011 January 25, 2011 February 3, 2011	UCF V.P. for Medical Affairs UCF President	Planning discussions for D.M.D. program with a focus on the pro-forma budget
January 10, 2011	UCF Assoc V.P. for Facilities and Safety COM Assoc Dean and Chief Legal Officer	Initial preparation meeting for BOG 5-year educational plant survey
January 24, 2011	UCF President, Provost, V.P. for Medical Affairs, Tavistock Group leadership, consultant	Planning meeting prior to trips to visit other dental schools
February 2011	UCF V.P. for Medical Affairs College of Medicine Cabinet	Discussions about potential D.M.D. program

Date	Participants	Planning Activity
February 7, 2011	UCF Assoc V.P. for Facilities and Safety UCF V.P. for Medical Affairs COM Assoc Dean for Administration and Finance Dean, College of Nursing COM Assoc Dir for Burnett School of Biomedical Sciences COM Director, Health Sciences Campus Operations COM Assoc Dean and Chief Legal Officer	Final review, discussion, and preparation for educational plant survey
February 8, 2011	BOG Educational Plant Survey Team UCF Provost and Vice President UCF and COM leadership related to Lake Nona campus planning	Presentation and discussion of space needs assessment and master plan for UCF Health Sciences Campus at Lake Nona that includes a dental school
February 24-25, 2011	Consultant on behalf of UCF Tavistock Group leadership Leadership at two dental schools	Consultant for UCF and Tavistock visits University of the Pacific and University of South Nevada
March 1, 2011	UCF President, Provost, V.P. for Medical Affairs, V.P. for Administration and Finance, Tavistock Group leadership, consultant	Review of pro-forma budget
April 5, 2011	UCF V.P. for Medical Affairs COM Assoc Dean for Planning and KM	Discussion about preparing D.M.D. program proposal to BOT
April 7, 2011	UCF V.P. for Medical Affairs UCF President	Discussion of D.M.D. program proposal timeline
April 8, 2011	UCF V.P. for Medical Affairs COM Assoc Dean for Planning and KM	D.M.D. program proposal planning
April 11, 2011	UCF V.P. for Medical Affairs COM Assoc Dean for Planning and KM U. of the Pacific	Conference Call to discuss faculty hiring plan for the D.M.D. program and budget parameters
April 11, 2011	Development Office Anonymous donor	Donor makes \$10 million pledge to establish the College of Dental Medicine at UCF
April 11 – May 5, 2011	UCF V.P. for Medical Affairs COM Assoc Dean for Planning and KM Vice Provost and Dean of the College of Graduate Studies	Preparation of proposal to the Board of Trustees
April 15 and 21, 2011	UCF V.P. for Medical Affairs COM Assoc Dean for Planning and KM Consultant	Refinement of pro forma budget
April 20, 2011	UCF Provost	Provost meets with Faculty

Date	Participants	Planning Activity
	Faculty Senate Steering Committee	Senate Steering Committee and College of Dental Medicine is endorsed unanimously.
April 21, 2011	UCF V.P. for Medical Affairs COM Assoc Dean for Planning and KM Consultant Tavistock Group leadership	Review of schedule, pro forma budget and building plan
April 21, 2011	UCF Provost UCF Faculty Senate	Provost meets with Faculty Senate to discuss the new dental program and college.
May 5, 2011	UCF Vice Provost and Dean of the College of Graduate Studies	Proposal sent to the Graduate Council
May 12, 2011	UCF Vice Provost and Dean of the College of Graduate Studies COM Assoc Dean for Planning and KM UCF Graduate Council	Approval of D.M.D. program proposal by Graduate Council
May 18, 2011	UCF V.P. for Administration and Finance UCF V.P. for Medical Affairs COM Assoc Dean for Planning and KM COM Assoc Dean for Admin and Finance Consultant	Conference call to finalize budget forms for BOT Approval
May 26, 2011	Board of Trustees Educational Program Committee, Finance Committee, and full board	Approval of D.M.D. program proposal by BOT committees and full Board of Trustees
May 31, 2011	UCF V.P. for Medical Affairs Anonymous donor	Meeting to discuss \$10 million donation
June 10, 2011	UCF V.P. for Medical Affairs American College of Dentistry Luncheon	Luncheon meeting at annual conference with Florida dentists
June 27, 2011	UCF V.P. for Medical Affairs Dean, UF College of Dentistry	UF Dean Teresa Dolan tours UCF Medical School and discusses dental school
June - August 2011	UCF President UCF Provost UCF V.P. for Medical Affairs	Various meetings and conversations with Central Florida dentists, hospitals, and clinics to discuss partnership arrangements
June - August 2011	UCF President UCF Provost UCF V.P. for Medical Affairs	Meetings and conversations with community leaders about support for the dental college
July 14, 2011	UCF V.P. for Medical Affairs	Discussion of template for

Date	Participants	Planning Activity
	COM Assoc Dean for Planning and KM COM Assoc Dean for Admin and Finance Dr. LeMon UCF Vice Provost and Dean of the College of Graduate Studies	dental degree program proposal to the Board of Governors
July 14-August 8, 2011	UCF V.P. for Medical Affairs COM Assoc Dean for Planning and KM COM Assoc for Admin and Finance COM Special Assistant to the Dean UCF Vice Provost and Dean of the College of Graduate Studies	Prepare proposal in new format and update content
August 12, 2011	UCF V.P. for Medical Affairs COM Assoc Dean for Planning and KM Dr. LeMon	Proposal received by BOG for its approval

V. Program Quality Indicators - Reviews and Accreditation

Identify program reviews, accreditation visits, or internal reviews for any university degree programs related to the proposed program, especially any associated with tangential academic units. List all recommendations and summarize the institution's progress in implementing the recommendations.

All key university health professional programs are currently accredited by the corresponding accrediting organizations. These include:

- Medicine: Liaison Committee on Medical Education
- Nursing: Commission on Collegiate Nursing Education
- Psychology – Human Factors: Accreditation Committee of the Human Factors and Ergonomics Society
- Psychology – Clinical Psychology: American Psychological Association
- Physical Therapy: Commission on Accreditation in Physical Therapy Education and American Physical Therapy Association
- Health Services Administration: Commission on Accreditation of Healthcare Management Education

In addition, Health Services, Medical Laboratory Sciences, Communication Sciences and Disorders, and Social Work are accredited by their professional organizations.

The programs listed in the following table will directly contribute to the D.M.D. program and have had accreditation visits and/or program reviews in the last few years. The University's internal program review process takes place every seven years. In the following table, recommendations are given along with progress to date:

Table V.1. UCF Health-related Program Reviews and Accreditation

Program	Visit Date/Organization	Recommendations	Implementation of Recommendations
Medicine	March 2011; Liaison Committee on Medical Education	None; Provisional accreditation granted	
Nursing - Accreditation	March 2007; Commission on Collegiate Nursing Education	Update the strategic plan to reflect college status	Completed.
		Develop clinical simulation scenarios	Received funding for simulation facility. Met with College of Medicine about joint activities.
		Use standardized tools for end of program evaluation and alumni/employer feedback	Created surveys for those completing programs. Developed course evaluations..
		Improve strategies for preparing students for certification examinations.	98 percent of students pass certification examinations.
Nursing – Program Review	2009-10; UCF Academic Affairs	Fill vacant tenure track lines	Hired 3 faculty out of 4 needed. Search underway for the 4 th faculty member.
		Complete move to University Towers	Completed. Moved in Summer 2010.
		Move to Lake Nona and pursue interdisciplinary opportunities	Planning and fundraising are underway.
		Increase connections with alumni	Met with Alumni Office to explore methods of doing this.
		Explore direct entry from B.S.N. to Ph.D.	Curricular changes being discussed by faculty committee
		Refresh Ph.D. curriculum	Completed. New seminar created and qualitative research offered earlier.
Psychology- Human – Factors – Program Review	2003-04; UCF Academic Affairs	Develop procedures for faculty governance and student advising	Completed.
		Develop strategic plan for program development	Completed.
		Restructure internships in curriculum	Completed.
		Develop mentoring process for students.	Completed.
Psychology – Clinical – Program Review	2003-04; UCF Academic Affairs	Hire two additional faculty members	Completed
		Add a support staff person	Completed
		Expand fundraising efforts	Began planning for a capital campaign to raise funds for program.
		Increase stipends for graduate students	Completed. Stipends were increased by \$4000.
Health Services Administration, Program Review	2009-10; UCF Academic Affairs	Enhance socialization of students, particularly online students	Developed more integrative assignments so that students work together more closely.

Program	Visit Date/Organization	Recommendations	Implementation of Recommendations
		Provide face-to-face instruction options	Pathways have been identified and communicated to student who want face-to-face sections of courses
		Add tenure-track faculty	Added three new faculty
		Improve alumni tracking	Met with Alumni Office to explore methods of doing this.
		Pursue interdisciplinary collaboration	Worked with Public Affairs Ph.D. program to solve interdisciplinary public policy issues related to health care
		Support faculty seeking sponsored research	Enhanced the college office's research support
		Pursue philanthropic support	Began planning for a capital campaign to raise funds for program.
Health Services Administration Accreditation	October 2008; Commission on Accreditation of Healthcare Management Education	Ensure information portals are consistent with decision analysis course and mission statement	Completed.
		Ensure curriculum includes accounting and financial management.	Completed.
		Ensure curriculum includes health care information system content	Completed.
Biomedical Sciences Ph.D. – Program Review	2009-10; UCF Academic Affairs	Appoint and operate a student affairs committee	Completed.
		Consider developing a faculty mentoring program.	This is being considered as part of a university-effort to improve faculty mentoring.
		Develop student community building	Students have been added to important faculty committees to provide input on policies and procedures.

The proposed dental college will enhance research activities and leverage academic interests throughout campus. These include (and were discussed in more detail in Section IV.B of the proposal) the following:

- College of Medicine, located at the UCF Health Sciences Campus at Lake Nona, with its Anatomy Laboratory, library, and administrative support; its educational programs (M.D., Ph.D. in Biomedical Sciences, M.S. and B.S. in Biomedical Sciences, M.S. and B.S. in Biotechnology, and B.S. in Medical Laboratory Sciences); and its research on cancer, cardiovascular disease, neurodegenerative diseases, and infectious diseases
- Materials research related to biomaterials in the Ph.D. and M.S. in Materials Science and Engineering and the Advanced Materials Processing and Analysis Center
- NanoScience Technology Center and its research in tissue constructs, biomaterials, and nanocrystals in therapeutic applications

- Modeling and simulation in the interdisciplinary Ph.D. and M.S. in Modeling and Simulation, and the Institute for Simulation and Training and its research in creating virtual environments for education and research
- Optical and photonic research in visual imaging and non-invasive diagnostic procedures in the College of Optics and Photonics, including the Ph.D. and M.S. in Optics, the Center for Research and Education in Optics and Lasers, and the Center of Excellence in Photonics
- A strong College of Nursing offering Ph.D., M.S., and B.S. degrees in Nursing as well as D.N.P., and the school's more than 650 existing affiliations with community-based, health care organizations. The UCF Nursing program has exceeded other nursing programs at the state universities in receipt of federal grant funding and has research interests in obesity prevention, weight reduction, and health promotion.
- Psychology research in the Ph.D. in Psychology, including strong emphases in human factors psychology and clinical psychology, and the M.A. in Clinical Psychology and master's programs' emphasis on team performance in health care and patient safety
- The School of Visual Arts and Design and the Film department offering the B.A., B.F.A., and M.F.A. in Film, the B.A. and M.A. in Digital Media, and the M.F.A. in Emerging Media and the department's research on gamin as educational tools for dental schools
- Chemistry Department offering the Ph.D., M.S., and B.S. degrees in Chemistry, and B.S. and M.S. degrees in Forensic Science, and the department's emphasis on drug delivery and biosensors

VI. Curriculum

A. Describe the admission standards and graduation requirements for the program.

Consistent with admission practices across the university, an Admissions Committee established by the D.M.D. program and College of Dental Medicine will develop recruitment strategies and review appropriate admissions policies to ensure a highly qualified, diverse student body drawn from Florida and nationally. The following is a summary of the admissions requirements for a dental school in a public university.

Admission Criteria for Dental Education Program

Applicants will be considered on a competitive basis with attention given to six factors: (1) DAT scores, (2) undergraduate transcript, (3) undergraduate GPA, (4) academic and non-academic achievements and experiences and other evidence of potential success in dental school, (5) interviews conducted by members of the D.M.D. program Admissions Committee, and (6) evaluation by preprofessional advisors and/or university professors.

Dental Admissions Test (DAT)

DAT scores will be considered on an individual basis as part of the overall evaluation of the candidate's entire academic record. To be considered for admission, scores on Academic Average and Perceptual Ability must be 16 or higher. Competitive scores generally will be 18 or higher on Academic Average, Reading Comprehension, Biology, Chemistry, Organic Chemistry and the Perceptual Ability Test. The highest score from the last three

administrations will be used to assess candidate performance. DAT scores older than three years at the time of application will not be accepted.

Undergraduate Transcript and Grade Point Average

The minimum requirement for admission into D.M.D. program is 90 semester hours of credit from a regionally accredited college. The following courses, completed with a minimum grade of C must be included:

- English: One year of college-level English
- Biology: Two years as required for college science majors, including one year of formal laboratory work
- Physics: One year as required for college science majors, including one year of formal laboratory work
- Chemistry: One year of general chemistry and one year of organic chemistry as required for college science majors, including two years of formal laboratory work
- Biochemistry: One semester (3 semester hours)
- Statistics: One semester (3 semester hours)

Although the D.M.D. program will evaluate each student's record on an individual basis, the candidate must have achieved a minimum science GPA of 2.8 in undergraduate, professional or graduate studies completed within the last three years to be eligible for consideration for admission.

Degrees and Majors

Although the D.M.D. program encourages applicants to complete their degree programs, a degree is not required for admission. A student may pursue any major provided that she or he fulfills the science and communications coursework prerequisites prior to matriculation into the dental education program.

Academic and Non-Academic Factors

The Admissions Committee will consider the following factors in determining which applicants to invite for an interview:

- Motivation for a career in dentistry and knowledge of the profession
- Academic performance patterns in undergraduate courses
- Academic course load and other evidence that the student will succeed in the intense dental curriculum
- Employment history
- Previous careers and military service
- Extracurricular activities with an emphasis on performance levels achieved
- Awards, honors and scholarships
- Research experience
- Volunteer work and community service
- Demonstrated leadership and team skills
- Problem solving skills and evidence of flexibility and adaptability
- Communication skills exhibited during the interview
- Professionalism including a criminal background check
- Disadvantaged student status

On-campus Interview

All applicants selected for a visit to the College of Dental Medicine will be interviewed by at least two members of the faculty. The interviewers will complete an interview evaluation form provided by the admissions committee.

Letters of Evaluation

Letters of Evaluation will be required from applicants. If a student is attending a school that has a health professions advisory committee, a letter of evaluation from the committee will be required. If a student is attending a school that does not have a health professions advisory committee, three letters of evaluation will be required. Two of these must be from science faculty who can evaluate the applicant's performance and potential for success in the D.M.D. program. The third can be from another faculty member (any field) or from a health professional who knows the student well.

There are two additional considerations related to admission to the D.M.D. program.

Criminal Background Check and Drug Testing

A criminal background check will be part of the final acceptance process. Applicants are informed that drug and alcohol testing is required and that many hospitals and other health care facilities require this testing for participation in rotations and other clinical activities.

Florida Residence

Some preference will be given to residents of the state of Florida during the admissions process.

Graduation Requirements

To be certified for graduation, dental students in the D.M.D. program must:

- Pass all courses
- Complete all clinical rotations with a designation of satisfactory performance;
- Complete all assigned remediation programs with designation of satisfactory performance
- Pass all clinical competency exams in the third and fourth years
- Obtain a satisfactory progress designation on the year-end, cumulative, progress assessment completed by the student's CPT leader and faculty at the conclusion of years 3 and 4
- Obtain a satisfactory progress evaluation for professionalism at the conclusion of Years 3 and 4
- Pass Part 1 (basic sciences) of the National Board Dental Examination
- Pass Part II (clinical sciences) of the National Board Dental Examination
- Pass the mock clinical board administered in the second semester of the fourth year

- B. Describe the curricular framework for the proposed program, including number of credit/contact hours and composition of required core courses, restricted electives, unrestricted electives, etc. Identify the total numbers of semesters or semester credit/contact hours for the degree.**

Curriculum Overview

Class will begin in fall 2014 with 60 students, and 100 students will be enrolled per year thereafter. Approximately 98 students will graduate each year after the program is fully operational. The four-year, 5,000 hour, 160-credit-hour degree program will be clinically based. During the third and fourth years, dental students will provide oral health care for patients under faculty supervision and mentoring in the College of Dental Medicine Primary Dental Care Clinic. A dissertation will not be required.

Sources of Information for Curriculum Design

The curriculum has been designed in compliance with standards for initial accreditation of a predoctoral educational program that are stipulated by the Commission on Dental Accreditation (CODA). The accreditation process and standards/criteria for initial approval by CODA appear on the CODA website (<http://www.ada.org/117.aspx>). The following other sources were considered during the conceptualization of the curriculum:

- Table of Specifications for National Dental Board Examinations, Parts One and Two, Joint Commission on National Dental Examinations
- Competencies for the New General Dentist: American Dental Education Association
- 2010-2011 summary of curriculum hours published by the American Dental Association which indicates the average curriculum time for U.S. dental schools by topic
- Results of the annual “Senior Survey” conducted by the American Dental Education Association in which the 4,000 graduating dental students in the U.S. evaluate the adequacy (amount of time and emphasis) and perceived helpfulness of educational experiences in the various components of the dental school curricula
- Literature on oral health care and dental education that advocate reforms for curriculum design¹⁻¹¹
- The July 2004 Report of the Ad Hoc Committee of Dental School Deans titled *Educating Doctors to Provide High-Quality Dental Care, a Vision for Dental Education in the United States*, commissioned by the AAMC Institute for Improving Dental Education (provides a framework for the creation of an ideal dental education system)

Guiding Principles for Curriculum Design

The dental education program in the D.M.D. program is based on seven principles that have guided the design of the curriculum and will shape the students’ learning experiences.

Contemporary general dentists must:

1. Address health issues and complexities beyond the traditional scope of dental care and thus, must be able to practice evidence-based comprehensive dentistry independently and in conjunction with other dentists.
2. Be able to contribute to the management of the patient’s overall health in conjunction with other health care practitioners in an interprofessional collaboration.
3. Be able to implement patient care strategies that are based on the overall medical profile of the patient, not only dental disorders, with emphasis on wellness, risk assessment, prevention and education. Accordingly, today’s general dentist must receive a well-grounded education in the mechanisms and manifestations of human disease and understand the interactions between systemic and dental disease.
4. Be able to provide primary care for an increasingly aging population with chronic medical co-morbidities associated with longevity and for individuals with limited

- access to basic medical services, and thus must be able to assess and identify health care problems and risks that need referral to other health care providers and provide patient education.
5. Demonstrate capacity for professional, ethical and socially responsible behavior and demonstrate effective interpersonal and communication skills.
 6. Demonstrate capacity for critical appraisal and pursue self-directed learning for life-long professional growth to effectively analyze issues, controversies and emerging diagnostic and therapeutic technologies, and to stay professionally up-to-date.
 7. Be able to provide oral health care for individuals with special needs and patients across the age spectrum: children, adolescents, adults, and the elderly, and provide basic medical assessment for these populations as a primary health care provider.

Curriculum Format

The four year predoctoral education program leading to the D.M.D. degree will be comprised of 62 courses organized into four themes, identified in Table VI.2, for a total of approximately 5,000 contact hours over 158 weeks, which is consistent with U.S. dental school curricular norms as reported by the American Dental Association. Table VI.1 compares the proposed D.M.D. program curriculum to that of selected reference dental schools.

Table VI.1. Curriculum Compared to Other Dental Schools

School	Curriculum Weeks	Curriculum Hrs/week	Total Hours	Basic Science Hours	Behavioral Science Hours	Clinical Science Hours
All U.S.	161	32	4,924	800	158	3,895
UCF D.M.D. program	158	32	5,024	790	422	3,812
WVU	154	31	4,783	720	78	3,985
Louisville	173	31	5,445	825	133	4,487
UMKC	154	33	5,105	700	79	4,326
Alabama	170	29	4,852	714	74	4,064
Florida	170	31	5,245	988	171	3,852
Georgia	162	32	5,250	849	140	4,261
Kentucky	172	29	4,923	894	229	3,800
Maryland	154	31	4,765	818	176	3,771
MUSC	152	41	6,259	865	133	5,261
Tennessee	155	33	5,190	708	428	4,054
UNC	144	33	4,804	644	139	4,021
VCU	158	32	5,096	826	81	4,189

Source: American Dental Association. *2008-2009 Survey of Dental Education: Curriculum*. Volume 6. May 2010

Years 1-3 in the D.M.D. program will consist of approximately 40 weeks of scheduled coursework, depending on the calendar and holidays, and a four week remediation period at the conclusion of the year. The fourth year will consist of 38 academic weeks, depending on the calendar. Students will have an approximate two-week break at the holiday season in December and an academic break in the spring, coinciding with the annual meetings of the

American Dental Education Association (ADEA) and American Association for Dental Research (AADR).

Overview of D.M.D. Program Curricular Themes

Students' learning experiences will be organized around four themes; which will each include 10-20 courses as described in Appendix H. Each of the following themes will be conducted vertically across all four years of the curriculum to provide students with an integrative learning experience:

- **Biomedical Foundations:** Students learn the processes that guide normal human development, and learn the causes and manifestations of abnormalities and disease with focus on the head and neck region.
- **Clinical Foundations:** Students learn a variety of non-surgical patient care skills that will enable them to function effectively in the clinical environment and acquire technical skills through simulation laboratories in the various therapeutic modalities necessary for general dental practice.
- **Dental Public Health and Professional Practice:** This theme has three longitudinal foci that run throughout the curriculum: dental public health, dental practice management, and ethics and professionalism in addition to courses on behavioral sciences, evidence-based practice and special/vulnerable patient populations.
- **Primary Dental Care:** In the largest component of the curriculum, students acquire the knowledge, skills and experience needed to develop competency in diagnosis, treatment planning, and providing dental therapy for patients under faculty supervision in the Primary Dental Care Clinic operated by the College of Dental Medicine.

Table VI.2 indicates anticipated time allocation for the themes. Each curricular theme will have a director and a coordinating committee who will plan and evaluate courses and teaching/learning activities within the theme. The directors of the respective themes will be members of the D.M.D. Program Curriculum Management Committee, as subsequently described.

Table VI.2. Time Allocation for D.M.D. Program Curriculum Themes

Themes	Hours	Percent of Curriculum
Biomedical Foundations	790	16%
Clinical Foundations	1,372	28%
Dental Public Health and Professional Practice	422	9%
Primary Dental Care	2,440	47%
Totals:	5,024	

Competency-Based Curriculum

The D.M.D. program curriculum will be competency-based as required by the Commission on Dental Accreditation and will be based on analysis of the knowledge base, values, and health care skills needed to function as a general dentist. The predoctoral dental education standards of the Commission on Dental Accreditation and the "Competencies for the New General Dentist" adopted by the American Dental Education Association (ADEA, "Competencies for the new general dentist," *J Dent Educ* 2008; 72(7):823-826) in April 2008 both endorse *competency-based education* as the model for the predoctoral curriculum, and both identify a "*general dental practitioner*" as the expected educational outcome of dental

school. A competency is defined as “a complex behavior or ability essential for the general dentist to begin independent, unsupervised dental practice. Competency includes knowledge, experience, critical thinking and problem-solving skills, professionalism, ethical values, and technical and procedural skills. These components become an integrated whole during the delivery of patient care by the competent general dentist.” Hendricson WD, Cohen PA. "Oral health care in the 21st century: implications for dental and medical education." (*Acad Med.* 2001; 77(12): 1181-1206)

In the competency-based curriculum in the D.M.D. program, *what* students will learn is based on competencies that the faculty members deem to be essential for successful, independent, and unsupervised performance as an entry-level general dental practitioner. The proposed competencies to be attained by D.M.D. program students to demonstrate readiness for entry-level general dentistry are presented in Appendix H. This appendix also displays linkage of the proposed D.M.D. program "graduation-readiness" competencies to the CODA accreditation standards for educational content and outcomes. Dental students in the D.M.D. program will be expected to demonstrate competency in the 20 domains of general dental practice that are defined by these competencies and associated educational outcomes, which indicate specific knowledge, skills and values that students are to acquire. These competency domains were developed by review of the CODA education standards, the ADEA "Competencies for the New General Dentist," review of recent literature on dental school curriculum directions and advocated reforms,¹⁻¹¹ and review of selected other dental school competency documents.

Special Areas of Curricular Emphasis

A core D.M.D. program mission will be to improve the oral health of the public with special attention to the underserved people in the Central Florida region by educating general dentists, conducting educational, clinical and health services research, and providing community-based services and health care leadership. In the pursuit of this mission, the D.M.D. program will educate general dentists to provide primary oral health care to the public focusing on delivery of dental care in the context of patients' overall health.

A major curricular focus will be preparing D.M.D. program graduates to function as primary care providers who are sensitive to the overall health care needs of the community, a substantial departure from the traditional focus of predoctoral dental education. D.M.D. program students will receive more curricular emphasis and learning experiences in systemic medicine and patient assessment than occur at many traditional dental schools so they will have the capacity to provide dental care in the context of patients' overall health and can provide care for the increasing elderly population, with associated chronic diseases, that characterize many communities in the Central Florida region.

Additionally, the D.M.D. program curriculum will incorporate five other unique features designed to graduate dentists who can think independently and work as team members of health care groups. One important feature will be sensitivity to the social and cultural factors in dental practice—particularly important in a region with a large minority population. The second unique feature will be working effectively as team members with other professionals in delivering health care. Third, prevention and promotion of health/wellness will be stressed throughout the students' educational experience. Fourth, the curriculum will emphasize evidence-based practice and critical appraisal of the biomedical literature so that D.M.D. program graduates will be able to remain current throughout their professional careers. To be certified for graduation, students will have to

demonstrate that they can locate pertinent information, read it and interpret it, and then use it appropriately for patient diagnosis and treatment.

The fifth unique feature will be the model for the student's clinical education. During the final two and a half years of the curriculum, students will participate in the largest theme of the curriculum, Primary Dental Care. During this theme, D.M.D. program students will acquire the knowledge, skills and experience needed to develop competency in patient assessment, diagnosis, treatment, planning and providing dental therapy for patients under supervision of general dentists in the College of Dental Medicine Primary Dental Care Clinic. Beginning in the second half of Year 2, dental students will provide patient care within the Clinical Practice Teams (CPT), organized to emulate a general dentistry group practice. Students will be guided on the CPTs by a small group of experienced general dentists to attain the core competencies identified in Appendix H. The general dentistry environment of the College of Dental Medicine Primary Dental Care Clinic will be augmented by weekly Clinical Practice Team Conferences where teams of students will work closely with their team faculty mentors to plan oral health care for a family of patients assigned to each CPT, and participate in case conferences, evidence-based reviews/literature triage, patient outcomes debriefings, and other group activities to reinforce the students' clinical learning experiences.

Curriculum Focus by Year

Dental students in the D.M.D. program will experience a sequentially designed learning experience designed to facilitate their acquisition of the biomedical, behavioral, professional, and clinical foundations needed for mastery of the 20 competencies that define the readiness for graduation. A synopsis of the main content focus and primary learning experiences for each year follows.

Year One

As a fundamental building block for all competencies, dental students will be introduced to the ethical principles that define professional behavior as a health care provider, and learn the foundations of normal human structure and function moving from cellular, to gross tissues, to organ systems. Structure and function of the orofacial region will be emphasized including a strong focus on anatomy of dentition. Students also will begin to acquire foundation skills in patient assessment including radiological techniques and physical examination. Students will develop skills in oral health risk assessment and prevention and begin their study of periodontal disease and therapy that prepares them for competency in these aspects of dental practice. A critical component of Year One will be the students' introduction to the perceptual and fine-motor skills needed for competency in many types of dental therapy. First-year students will be introduced to the clinical environment, including community-based prevention, and will begin to acquire clinical support skills that will allow them to serve as assistants to upper class students during the second year. The courses in this year are listed below:

Biomedical Sciences:

- Biochemistry and Nutrition
- Dental Microscopic Anatomy
- Gross Head and Neck Anatomy
- Physiology of Human Organ Systems
- General Pathology
- Microbiology and Immunology of Systemic and Oral Diseases
- National Board Part 1 Review

Clinical Sciences:

- Dental Anatomy and Occlusion
- Foundations of Restorative Dentistry 1
- Patient Assessment 1
- Periodontology
- Clinical Fundamentals 1

Ethical and Professional Practice:

- Introduction to Oral Health and the Dental Profession
- Ethical and Professional Practice 1
- Dental Practice Readiness 1 (Practice Management)
- Dental Public Health 1: Oral Health Promotion

Year Two

Building on the foundations of normal human structure and function developed in Year One, second-year students will analyze the causes and clinical presentations of oral abnormalities and diseases of the major organ systems. This learning process, moving from normal to recognition of abnormal conditions, provides the cognitive groundwork for competency in patient evaluation and diagnosis. Students also will study pharmacology, which provides linkage between pathology and therapy, and oral pathology to begin their focus on diseases and abnormalities of the head and neck region. A major focus of the sophomore year will be development of procedural skills in preclinical simulation laboratories. Specific preclinical skills, linked to various patient care competencies, must be mastered to certify that students are ready for progression to the clinical phase of the curriculum. Second-year students also will assist upper class students in the clinic and receive additional experience in patient evaluation to provide a transition into the junior year clinical experience. During the second semester of Year Two, students will provide direct vision restorative care for several patients, working in conjunction with an upper class student (for the inaugural class, faculty members will serve in the role of upper class students), and mentoring by CPT faculty. Second year students will function as assistants for third and/or fourth year students during regularly scheduled sessions in the clinic throughout the fall and spring semesters, and also will participate in case conferences and other meetings conducted by the CPTs to facilitate transition into the clinic environment and help them learn about Team operations. Service learning projects are also required as part of the curriculum for the second year. Below are the courses to be taken in Year Two.

Biomedical Sciences:

- Pharmacology for General Dentists
- Pathology of the Head and Neck
- Oral Pathology

Clinical Sciences:

- Diagnosis and Treatment Planning
- Fundamentals of Oral Imaging Technique and Interpretation
- Oral and Maxillofacial Surgery (includes local anesthesia and nitrous oxide)
- Foundations of Restorative Dentistry 2
- Clinical Fundamentals 2
- Behavioral Sciences
- Pediatric Dentistry
- Orthodontics
- Endodontics

Periodontal Therapy
Advanced Patient Assessment

Ethical and Professional Practice:

Ethical and Professional Practice 2
Evidence-Based Practice of Dentistry
Dental Practice Readiness 2
Dental Public Health 2-Biostatistics and Epidemiology
Community Oral Health Service Learning Project

Primary Dental Care:

Clinical Medicine for General Dentists
Primary Dental Care Clinic (6 - 9 hrs/wk during 2nd half of year)
Clinic Practice Team Conference 1 (2 hrs/wk during 2nd half of year)

Year Three

The third year will have a strong clinical focus as students apply the knowledge, skills, and values acquired in Years One and Two to the oral health care of patients. Junior students join one of the Clinical Practice Teams (CPTs) and will remain in that CPT throughout their 3rd and 4th years. A team of faculty members, headed by a general dentist, will guide each CPT and work closely with students in their team to provide hands-on mentoring, coaching, and feedback. The CPTs will provide students with an environment where they have continuous contact with a small group of instructors and also provide a forum for conferences, faculty demonstrations, case reviews, and other learning activities to enrich the students' clinical education, and help them blend together many aspects of their education. Learning experiences, derived from the process of patient assessment and treatment, will be orchestrated to facilitate students' acquisition of the 20 competencies. Third-year students also will receive instruction and patient care experiences during discipline-specific rotations including pediatric dentistry, prosthodontics, endodontics, temporomandibular disorders/orofacial pain, dental emergencies/urgent care and oral surgery. An important component of the CPT experience will be the evaluation of students' professionalism, which will occur via daily formative assessments provided at the end of patient encounters by the supervising CPT faculty and recorded on monthly comprehensive progress evaluations. Students cannot progress to the senior year if they are found to be deficient in professionalism. The following courses are required in Year Three.

Biomedical Sciences:

Biomedical and Clinical Science Integration Seminar
Biomedical and Clinical Science Research Practicum

Ethical and Professional Practice:

Ethical and Professional Practice 3
Dental Practice Readiness 3
Dental Public Health 3-Oral Health Care Systems
Special and Vulnerable Patient Populations 1

Primary Dental Care:

Management of Medical Emergencies
Integrated Clinical Science Seminar (ICS)
Urgent Care Rotation 1 (Dental Emergency Care)

Primary Dental Care Clinic (21 -24 hrs/wk all year)
Clinic Practice Team Conference (2 hrs/wk all year)

Year Four

Students will continue their acquisition of clinical competency through extensive patient care experiences within the CPT framework. Fourth year students will be expected to demonstrate increasing capacity for independent functioning with less reliance on faculty for guidance and assistance. Through the patient assignment function of the CPTs, seniors will receive opportunities to provide care for patients with a wider variety of oral health needs and to treat dental problems that increase in complexity as the year progresses. To enrich and diversify their education, fourth year students will participate in focused rotations in pediatric/adolescent dentistry, oral surgery, implantology, geriatric medicine/dentistry, dental emergencies/urgent care, oral medicine, and at community locations. During Year Four, students will participate in clinical pathological conferences and other integrative seminars conducted in a case-based format to facilitate integration of biomedical, behavioral and clinical science concepts. Students will provide dental care for low-income people in the clinic and in community-based health centers and this is typical of dental schools where nationally, 57 dental schools reported over 260 hours of community-based clinical care. (*Breaking Down Barriers to Oral Health for All Americans: The Role of Workforce*, ADA, February 22, 2011: page 13)

Ethical and Professional Practice:

Ethical and Professional Practice 4
Dental Practice Readiness 4
Special and Vulnerable Patient Populations 2

Clinical Sciences and Primary Dental Care:

Integrated Clinical Sciences Seminar 2 (ICS), including modules on:

- Pharmacotherapeutics
- Advanced Imaging and Interpretation
- Oral Oncology
- Orofacial Pain

Hospital Dentistry Rotation

Pediatric Dentistry Rotation

Oral Surgery Rotation

Clinical Elective Rotation

Urgent Care Rotation

NBDE Part 2 Board Review

Primary Dental Care Clinic (21 - 27 hrs/wk all year)

Clinic Practice Team Conference (2 hrs/wk all year)

Student Assessment

Each course in the curriculum will support one or more of the D.M.D. program competencies. Specific assessment methods to measure students' progress toward competency and ultimate attainment of competency necessary for entry-level professional practice will be identified for each competency domain based, in general, on the assessment continuum described in the following paragraphs.

The D.M.D. program will implement competency assessment techniques that are consistent with contemporary practices in health professions education as articulated in recent reviews of assessment theory and literature and best practice recommendations developed by the

American Dental Education Associations' Commission on Change and Innovation (CCI) in Dental Education. Kramer G, Albino JEN, Andrieu S, Hendricson W, Henson L, Horn B, Neumann L, Young S. "Dental student assessment toolbox." *J Dent Educ.* 2009; 73(1): 12 - 35 and Albino JEN, Young S, Neumann L, Kramer G, Andrieu S, Henson L, Horn B, Hendricson W. "Assessing students' competency: best practice recommendations in the performance assessment literature and investigation of current practices in predoctoral dental education." (*J Dent Educ.* 2008; 72(12): 1405 - 1435)

The competency assessment model in the D.M.D. program will follow Miller's *Pyramid of Professional Competence* that is explained in Table VI.3. Miller G. "Assessment of clinical skills, competence and performance." (*Acad Med.* 1990; 65: 563-567)

Miller's four-layer categorization of "levels of knowing" and associated assessments describe the learning and measurement continuum in health professions education and provide the conceptual basis for the D.M.D. program assessment philosophy. Each level of knowing represents a stage in the students' progression toward competency. The base level is "Knows", which is factual recall or recognition of information without reference to a patient care context, typically measured by multiple-choice questions (MCQ's). At the "Knows How" level, students must demonstrate the ability to apply biomedical information to the analysis and resolution of health care problems presented in written cases and simulations. At the "Knows How" level, students should also be able to explain how basic pathophysiological mechanisms work and how health abnormalities occur. Essays, MCQs based on scenarios, oral evaluations (i.e., question and answer between instructor and students), and more sophisticated techniques such as the Triple Jump Exercise (a multi-stage problem-solving simulation) are appropriate assessment tools. At the "Shows How" level, students must demonstrate the capacity to apply patient care skills *in vitro*, in laboratories, and in simulations that approximate patient care in clinical facilities. More sophisticated assessment methods are employed at this stage that place students in simulations of dentists' actual working conditions to determine if students can apply knowledge and skills in controlled, well supervised conditions.

At the "Does" level, students must execute the core responsibilities of a dentist *in vivo*, i.e., in realistic working conditions with decreasing levels of instructor support. The aim of assessment at this level is to determine whether the student has mastered the competencies necessary for unsupervised practice and can reproduce these skills with a consistent level of performance over an extended time period. Assessment techniques at this level emphasize direct observation of students' performance during patient care and review of representative work samples by various techniques, including the portfolio and clinical competency examinations on selected "test patients" where students provide oral health care without faculty assistance.

Table VI.3. Miller's Pyramid of Professional Competence with Recommended Assessment Techniques (Miller G. "Assessment of Clinical Skills, Competence and Performance." *Acad Med.* 1990; 65:563-567)

Knowledge	Assessment	Performance
Does	Work - longitudinal appraisal (authentic)	Observation of performance, portfolios, assess products, triple jump exercise, 360 assessment, clinical competency exams, videotaping/review, longitudinal appraisal
Shows How	Controlled situations	OSCE, simulation exercises, lab practicals, perform skills with standardized patients
Knows How	Application to patient care	Essays, case based MCQ, oral (verbal) exam
Knows	Factual recognition	Context-free MCQ, reports written by students, presentations

Summary of Primary Methods to Assess Students' Performance

Courses That Provide Biomedical, Behavioral and Clinical Foundations

Courses primarily conducted in a classroom or seminar setting to help students acquire foundational knowledge will assess students' mastery of learning objectives by means of written examinations. Where appropriate to course objectives, case-based analysis will be used to measure students' comprehension and capacity to apply acquired concepts to patients' oral health problems. Other strategies may be used on occasion for specific types of learning objectives including oral examinations, written reports, on-line examinations, and case presentations/reports by student teams.

Assessment of foundational knowledge will also be determined by satisfactory (Pass) performance on the National Board Dental Examination (NBDE) Part I, which students will complete at the end of the first academic year.

Preclinical Courses

Courses designed to prepare students for the clinical environment and help them acquire behavioral, procedural and technical skills necessary for patient care will primarily utilize simulation exercises to assess competency. Practical (technique) exams will be employed in laboratory courses to determine students' ability to perform procedural tasks commonly used in dental treatment in a simulation environment. Students' readiness to provide other patient care skills will be assessed by OSCEs (Objective Structured Clinical Examinations), a timed station exam. Successful completion of these simulation exercises will be required to move into the clinical phase of education. Students who receive unsatisfactory on assessments in preclinical courses will be offered remediation and re-assessment either within the structure of the course or during the Summer Remediation Program depending on the nature of the student's learning needs.

Clinical Education

Assessment of clinical competency will take various forms as previously described with strong emphasis on Clinical Practice Teams (CPT) faculty members closely observing

students' day to day performance over the two year period of intense clinical education. Faculty members in the CPTs will use established patient care standard of care guidelines to assess each patient encounter and provide formative feedback to the student at the conclusion of each patient appointment. In order to ensure consistency, these guidelines will be identical to those utilized in preclinical simulation exercises in Years One and Two.

Clinical competency exams will be a primary assessment method to determine students' progress toward and attainment of many of the competencies. Students will complete approximately 20 clinical competency exams during Years Three and Four. These exams will involve four components to provide a comprehensive appraisal: (1) instructor observation of students' performance of designated patient care tasks during assessment and/or treatment of a patient in the College of Dental Medicine Primary Dental Care Clinic, (2) appraisal of the students' compassionate interaction/communication with the patient during the clinical appointment, (3) assessment of the outcomes of treatment provided by students in accordance with College of Dental Medicine Clinical Guidelines, and (4) students' self-assessment.

Most clinical disciplines will require a designated level of initial experiences before a student will be able to challenge a clinical competency exam. CPT leaders will work with students to determine readiness for competency exams based on the student's portfolio of patient care experiences. Two or more attending faculty will oversee patient care provided during the competency exam and assess the student's ability to utilize proper independent thinking, clinical judgment, and self-assessment to manage the procedure to its completion. If a student does not pass the competency assessment, he/she will be given an opportunity for re-assessment at a subsequent time after debriefing of the failed exam and individualized coaching by a CPT faculty member. If the CPT leader determines that the student requires more extensive remediation, a designated program of education will be completed before the student can re-attempt the failed competency.

Each student in the third and fourth year of clinic education will receive a comprehensive monthly progress evaluation comprising important components of patient care including professionalism, communication skills, assessment and treatment planning, capacity for self-assessment, problem solving capabilities, surgical and procedural skills, adequacy of progress toward discipline-based competencies, effective and efficient use of time and resources, and contributions during the CPT Conferences. Appraisal of students' progression toward competency will also occur via periodic assessment of the portfolio of patients treated and completed by the student. The portfolio review will incorporate student self-assessment and critique by CPT faculty.

In addition to these assessment methods, students' performance on NBDE Part 2 will be another indicator of their mastery of core clinical knowledge that is applied to patient assessment and treatment.

Additionally, 4th year students will be expected to complete a mock board examination that will parallel the Florida Board of Dentistry Licensure Examination and provide additional preparation for this examination. Students' performance in the clinical years will be monitored by the Associate Dean for Clinical Affairs/Patient Care, the Associate Dean for Academic Affairs, the Curriculum Committee, and the Clinical Practice Team leaders to identify problematic areas and initiate appropriate changes in the curriculum.

Licensure of new dentists in Florida currently occurs through the Florida Board of Dentistry Licensure Examination. Foundational knowledge, preclinical simulations, and clinical competency examinations, augmented by two years of patient care experiences in diagnosis,

treatment planning, restoration, periodontics, endodontics, oral surgery, and prosthodontics will prepare students for this licensing examination.

Curriculum Management

The D.M.D. program will have the following two standing committees: (1) the Curriculum Committee that deals with long-range educational planning and special projects and (2) the Curriculum Management Committee that handles on-going program management. Both committees will work in close collaboration with the Associate Dean for Academic Affairs to implement curriculum planning and review processes. Faculty and students will be members of both committees.

The Curriculum Committee focuses on overall educational policy including goal setting, special projects, problem investigation, promoting innovation, and conducting pilot projects. In this capacity, the Curriculum Committee conducts periodic comprehensive assessments of the overall predoctoral education program for purposes of identifying issues and potential solutions. A major task of the Curriculum Committee will be to conduct periodic assessments of the D.M.D. program competencies to determine the currency and relevancy of these competency domains to the practice of general dentistry and to emerging trends in oral health care.

A major function of the Curriculum Management Committee (CMC) will be to ensure appropriate scheduling of courses to facilitate a logical sequence of learning for students. To accomplish this goal, the CMC, in collaboration with the Associate Dean for Academic Affairs and in consultation with the theme directors, monitors and coordinates the sequencing of courses to ensure that the various components of biomedical, behavioral and clinical science instruction are coordinated to promote students' understanding of concepts that are building blocks for subsequent learning. The CMC will also coordinate the course evaluation process including students' evaluation of courses and faculty peer review of courses, both of which are subsequently described in this standard. Outcomes from both of these review mechanisms contribute to the CMC's assessment of the sequencing, focus and depth of courses in relation to the overall guiding principles of the D.M.D. educational program.

Curriculum planning and management will not be restricted exclusively to these committees. Issues or concerns that affect the curriculum may be brought forward from various sources including other standing committees that deal with preclinical and clinical education issues. Curricular issues identified by these committees will be discussed with the Associate Dean for Academic Affairs, who may charge either the Curriculum Committee or the Curriculum Management Committee to study the issue and make recommendations. The Dean of the College of Dental Medicine may appoint special Ad Hoc Task Forces to address urgent and time dependent issues, including curricular problems or unique opportunities for enhancement of the educational program. These task forces will be appointed in consultation with the Associate Dean for Academic Affairs. Recommendations from these ad hoc groups will be submitted to the Curriculum Committee and the Associate Dean for Academic Affairs for feedback and additional recommendations.

Course Review Process

The curriculum management plan will include on-going review based on the following four sources:

1. Outcomes data (student achievement) including student performance on assessments in each course, and other outcomes such as number of students

- requiring remediation, percentage of students who fail courses, student attrition, results of National Board Exams, and results of licensure exams
2. Faculty assessments (peer review) of courses, which will focus on the relationship of course objectives, content, teaching/learning strategies and evaluation techniques to D.M.D. program competencies, as well as appraisal of the course syllabus
 3. Students' perceptions of each course including organization, clarity, adherence to stated objectives, presentation, workload, and teaching/learning methods as measured by the course evaluations completed online by students at course/rotation conclusion
 4. Students' perceptions of the overall learning environment in the D.M.D. program, assessed in two formats: (a) annual end-of-year assessments (e.g., end of Year One, end of Year Two, etc.), and (b) graduating seniors' overall appraisal of the curriculum across several dimensions

Assessment of the Curriculum

Student achievement will be a critical component of the outcomes assessment process for the D.M.D. program curriculum. Measures of student achievement that will be routinely collected and reviewed by the Associate Dean for Academic Affairs, Curriculum Management Committee, and other applicable committees will include the following:

- Students' performance in D.M.D. program core courses including didactic (classroom), simulation laboratory, and clinical learning environments
- Analysis of first-pass and ultimate pass rates for the approximately 20 clinical competency exams administered in Years Three and Four
- Appraisal of students' monthly progress reports in Years Three and Four to identify competencies and other areas of education where students struggle
- Percentage of matriculated students who graduate in four years and percentage who ultimately graduate from the UCF College of Dental Medicine
- Analysis of student attrition rate and reasons for student departure
- Percentage of students who need remediation at the conclusion of each year
- Assessment of themes/areas of the curriculum where the most students need remediation
- Students' longitudinal performance in the Clinical Practice Teams (CPTs) as assessed by the CPT leaders and faculty members
- Students' performance on National Board Dental Exams Parts 1 and 2
- Students' performance on clinical mock boards administered in the 4th year
- Students' performance on the Florida Licensure Exam and other licensure examinations
- Percentage of graduating students who are accepted into postdoctoral programs

Curriculum References

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4. *Improving the Oral Health Status of all Americans: Roles and Responsibilities of Academic Dental Institutions*. Report of the ADEA President's Commission. Washington, DC: American Dental Education Association, 2003.
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C. Provide a sequenced course of study for any concentrations, or areas of emphasis within the proposed program.

Does not apply for the D.M.D program.

D. Provide a one-sentence description of each required or elective course.

Year One

Introduction to Oral Health and the Dental Profession (CDMXXXX)

In the first course of the curriculum, students begin their preparation to become dentists by learning what constitutes good oral health and how it is maintained throughout the life cycle. Types of dental diseases and abnormalities are reviewed with emphasis on their causes and strategies for prevention and treatment. Barriers to oral health care will be analyzed with focus on strategies to overcome these barriers and the dentist's responsibilities to facilitate access to oral health care. Students learn the types of oral health problems that are treated by each of the dental specialties and are introduced to the concept of primary care dentistry. The relationship between dentistry and medicine is described and dentists' scope of medical practice is compared to that of physicians. Students will learn the history, traditions and values of the profession of dentistry, and the history, mission and environment of the UCF College of Dental Medicine.

Biochemistry and Nutrition (CDMXXXX)

The course introduces dental students to basic biochemistry and nutrition related to fundamental cellular processes and to processes relevant to the oral cavity. This knowledge provides the dental student with a framework with which to understand clinical aspects of dentistry presented in subsequent courses in the curriculum. Students explore fundamental cellular components and macromolecules, such as proteins and nucleic acids; metabolism of carbohydrates, proteins, and lipids; elementary processes such as DNA replication, transcription, translation, and energy transduction; and biochemistry of processes relevant to the oral cavity such as blood coagulation, caries formation and calcium homeostasis. Nutritional concepts and processes are also explored including: digestion, absorption, biosynthesis and metabolism of carbohydrates, lipids, and proteins/amino acids. Students learn how to conduct dietary screening from clinicians.

Dental Microscopic Anatomy (CDMXXXX)

Through lectures and laboratory exercises, CODM students will study the microscopic structure of the basic tissues and organs of the human body, and learn the embryonic development and structure of the face and the oral cavity to include the teeth and perioral structures. Information acquired serves as the foundation for the understanding of normal histological structure, function, local pain, anesthesia, interpretation of medical history, and histological changes arising from pathological changes in the oral cavity, as well as the histological basis for wounding healing and repair, and bonding compounds for dental restorations. The course emphasizes the development and microscopic organization of the four basic tissues in the formation of the oral cavity, teeth, and supporting tissues.

Gross Head and Neck Anatomy (CDMXXXX)

This course correlates the anatomy of human organ systems and regions (i.e., pulmonary, cardiovascular, central nervous system, head and neck) with basic clinical medicine principles that are relevant to the practice of dentistry. Aspects of human embryology are included in the course to provide students with a developmental framework for understanding normal anatomy and common anatomical variations as well as recognizing developmental abnormalities that are seen clinically in patients treated by dentists. Overall, this course provides students with foundation concepts that will facilitate learning in subsequent courses that explore patient assessment techniques, medical and dental pathologies, and medical co-morbidities that are pertinent to the planning and delivery of dental treatment. The goal of the first component of the course is to provide dental students with functional knowledge of normal human gross and developmental anatomy, with focus on the trunk and principle organ systems, as a basis for the comprehensive practice of dentistry including awareness of and attention to the patient's overall medical condition. Laboratory exercises will involve examination of prosected anatomical specimens, models, radiographs, videotaped dissection demonstrations, and use of computer simulations. Classroom sessions feature student assessment of cases to identify anatomical structures and organizational principles involved in patients who have suffered injuries or present with various types of symptoms and physical findings. The second component of the course focuses on anatomy of the head and neck region and neuro anatomy. Students will learn structures of the head, neck and oral cavity, and neuroanatomy tailored for the future general dental practitioner. Regional anatomy will be presented by lectures augmented by case studies, radiographic imaging, video images, mounted specimens and plastinated models. Particular emphasis will be placed on major pathways for pain and motor control

for the head and neck. Students will integrate the gross structures of the head and neck with functional pathways for pain and motor control for this region.

Physiology of Human Organ Systems (CDMXXXX)

The goal of the course is to provide dental students with the basic principles of physiology with particular emphasis given to those areas that are of prime concern to the general dental practitioner. In this course, students will develop an understanding of the normal functions of the major systems of the body, an ability to recognize the signs and symptoms of systemic dysfunction, and an understanding of the mechanisms that account for these manifestations. Also, the student will develop the background necessary to become competent in preventing, managing and/or referring systemic derangements that may represent a potential medical emergency in the dental office.

Microbiology and Immunology of Systemic and Oral Diseases (CDMXXXX)

During this course, students will acquire foundational knowledge of the human host-parasite relationship which is essential to the clinical care of the patient and to the evidence-based management of oro-facial infections including dental caries and periodontal disease. Students will explore fundamentals of microbiology and infectious diseases and the elements of the immune response to common pathogens. Clinical case studies will be used to illustrate infectious processes in oral and systemic diseases, with emphasis on infections of the oral cavity. Students also will learn the principles of infection control in the dental practice setting, including the use of antimicrobial therapy and immunizations. The course emphasizes how orofacial health and disease affect the entire body and how systemic health and disease affect the orofacial complex. Students will use and evaluate current primary literature as a learning resource, with a view to improvement in their critical thinking skills and their appreciation for the need for life-long learning as health professionals.

General Pathology (CDMXXXX)

General pathology will facilitate students' comprehension of the most common pathologic processes affecting the human body. The course will emphasize the etiology, pathogenesis, clinical characteristics, and treatment/prognosis of specific disease processes. The knowledge acquired in this course will allow general dentists to evaluate disease processes presenting in their patient population and to understand the relationship of these disease processes to primary care dentistry. The first part of the course will review basic mechanisms of disease, primarily at the cellular level, and the relationship of these mechanisms to systemic pathology. The second part of the course will cover the major diseases associated with each organ system.

Dental Anatomy and Occlusion (CDMXXXX)

This course develops the students' knowledge of tooth anatomy and the psychomotor skills needed to restore defective teeth to proper form, function, and esthetics. Occlusion is also emphasized throughout the course. During classroom and preclinical laboratory experiences, students learn and refine their skills in forming the dental anatomy using wax and a resin-based composite restorative material. Students also learn tooth numbering systems for primary and permanent teeth, dental terminology for tooth surfaces, locations, and anatomical features, anatomical variations between each primary and permanent tooth, the average age of eruption, and the sequence of eruption, age of root closure, and age of calcification for each primary and permanent tooth. Preclinical laboratory exercises using sterilized extracted teeth, dental typodonts, and mounted dental casts reinforce lectures. Students use the extracted teeth to identify the different teeth and the variations that can be

found among them. Students use dental typodonts to build each tooth through an addition wax technique. Using mounted dental casts, students construct the occlusal anatomy for each tooth with wax or resin-based composite restorative material, and develop the psychomotor skills needed to use dental handpieces for contouring and polishing resin-based composite restorative material.

Ethical and Professional Practice 1 (CDMXXXX)

During the first year ethical practice course, small-group discussions will focus on ethical issues commonly experienced by dental students, and will include behavioral expectations and academic integrity. The Student Honor Code will also be discussed in small groups. The ADA "*Principles of Ethics and Code of Professional Conduct*" will be a prominent resource to support these discussions. Additionally, students will complete an online course offered by the American College of Dentists and complete the accompanying examination. Additional discussions during the first year ethical practice course will include issues related to privacy and confidentiality, HIPAA, OSHA, patient records, informed consent, and ethical issues relating to providing health care for diverse patients, including those with HIV.

Dental Public Health 1: Oral Health Promotion (CDMXXXX)

In this course, dental students learn fundamental concepts of public health and common dental indices of disease with emphasis on assessment, promotion and risk prevention related to oral health in the community. Prevention of diseases at the population/community level rather than at the individual level will be emphasized. Students review the wide range of oral diseases and disorders that effect the U.S. population as identified in NIDCR Oral Disease Burden to facilitate students' appreciation that dental care extends beyond caries and periodontal disease. Students will explore strategies for prevention of common oral diseases and conditions with focus on periodontal diseases, oral cancer and caries with emphasis on systemic and topical fluorides. Students will also complete course components on cultural competency, oral health education and health literacy. Later, students explore principles and theories of the health belief model and social cognitive theory. A major section of the course focuses on school-based assessment and prevention. In a lab, students learn to apply pit-and-fissure sealants and fluoride varnishes on tooth models. A significant long-term goal for D.M.D. program, as the dental education program matures, is to implement a program in which student teams go to elementary schools where they will provide oral health education to children, perform dental screenings, and apply sealants and topical fluorides.

Foundations of Restorative Dentistry 1 (CDMXXXX)

During this year-long multidisciplinary course, students develop a continuum of skills needed for restoration of tooth structure, function and esthetics ranging from basic direct restorations to implant therapy. The students' learning process starts in the first year with fundamentals of cariology, disease prevention, risk management, and strategies for non-surgical treatment of dental caries. The students' learning experience in preclinical technique labs begins with use of rotary instruments and development of the eye-hand coordination needed for execution of dental surgical techniques. Students learn biomaterials used in different types of dental therapy as each technique is introduced in the course. In a longitudinal continuum moving from basic to more complex, students learn and practice the procedural skills needed for direct and indirect restorations of defective tooth structure with amalgam, composite resins, laminates and veneers, assessment of interarch (occlusal) relationships, single tooth crowns, multiple unit fixed bridges, removable restorations such as complete and partial dentures, overdentures, fitting restorations to partial dentures, and

implant-supported prostheses. Throughout the course, technical skill is developed through progressively complex simulations.

Patient Assessment 1 (CDMXXXX)

During this course, students learn and practice patient evaluation including interviewing skills to elicit a medical, dental, social and medication history and the patient's chief complaint, physical examination of the head and neck, and documentation of findings in the patient's medical record. Students will observe demonstrations of interviewing and examination techniques and then practice these skills. Each simulation lab will conclude with a practical examination where students demonstrate mastery of the skill introduced in that session. The final exam will be an OSCE (Objective Structured Clinical Examination) using Standardized Patients to assess students' ability to perform fundamental patient evaluation skills.

Dental Practice Readiness 1 (Practice Management) (CDMXXXX)

Dental students will complete a longitudinal, four-year curriculum in dental practice management and dental career planning known as the *Dental Practice Readiness Curriculum* (DPRC). The DPRC will use a blended-learning format including online education, simulations, classroom activities and self-directed learning. DPRC consists of four sequential levels implemented vertically year by year to help students learn and apply the methodology of strategic planning, first to personal and professional aspirations and, then, to managing a dental practice. In Year One DPRC, students develop a strategic plan for achieving personal and professional goals during their dental careers and estimate personal budgetary needs. They learn and practice: goal setting, developing vision and mission statements, and the steps involved in strategic planning. Students also explore principles and methods of personal financial planning including accounting principles, cash flow management, and use of balance sheets. Students learn how to develop a budget and prepare one for a simulated dental practice.

Periodontology (CDMXXXX)

This first year course, in conjunction with the second year course focusing on Periodontal Therapy, prepares students to identify and manage gingival and periodontal diseases. Students learn the etiology and clinical manifestations of periodontal diseases, how these diseases destroy tooth supporting tissues, and how these diseases are associated with the systemic health of patients. Students acquire the skills to clinically and radiographically evaluate the periodontal status of patients. In laboratory components in the first year course, students learn to perform periodontal examinations, conduct risk assessment, evaluate patients' oral hygiene and deliver oral hygiene instruction, and learn how to perform dental prophylaxis, and scaling and root planing. These skills are applied in the clinic in the second year course.

Clinical Fundamentals 1 (CDMXXXX)

The goal of the Clinical Fundamentals course is to prepare dental students to function effectively in the clinical environment and learn non-surgical skills necessary for providing efficient and safe patient care. This course provides the foundation for the clinical curriculum and provides students with critical foundational skills for dental practice. Dental students learn approximately 30 non-surgical clinical skills that accompany and support the actual delivery of dental treatment and enable students to participate actively in limited patient care early in the curriculum. Students will acquire these skills during small group and one-on-one hands-on demonstration and coaching by faculty and ultimately, as the

school matures, by instruction and mentoring by upper class dental students. First-year students are introduced to the clinic environment and learn skills that allow them to function as a chairside clinical assistant for upperclassmen. These chairside clinical skills include cubicle preparation, infection control and environmental safety including handling of hazardous materials, seating and positioning of the patient, positioning of dentist and assistant, transfer of dental instruments, monitoring and recording vital signs, basic medical and dental charting, evacuation and retraction, and providing basic therapy for patients including oral hygiene and risk prevention instruction.

National Board Part 1 (Basic Sciences) Review (CDMXXXX)

The D.M.D. program curriculum will prepare students to take NBDE Part 1 during the summer between Years One and Two. This 2-week course at the end of Year One will provide a capstone integration of biomedical and biological science concepts introduced to students in Year One and provide focused review of each of the four sections on NBDE Part 1: biochemistry and physiology, microbiology and general pathology, gross and microscopic anatomy, and dental anatomy.

**** Year One Remediation Program**

Students who do not pass any first year course will be given an opportunity to remediate during the summer in order to achieve the established performance standard. Student progression through that academic year will not be deterred except in extreme cases, if faculty determine that students have sufficient capacity to allow successful completion of other courses. The remediation program will be conducted during a 4 week period in the summer immediately after the conclusion of formal coursework for that year. The specific remediation program for each course will vary according to the nature of the learning outcomes for specific courses.

Year Two

Ethical and Professional Practice 2 (CDMXXXX)

In the second year course of the ethical practice continuum, dental students will explore issues pertaining to the doctor-patient relationship, interpersonal boundaries, and continue to explore issues pertaining to patient autonomy and informed consent as they relate to treatment planning, clinical decision-making, and professional judgment. Issues such as managed care, third-party payment systems, and public assistance programs (Medicaid, CHIP, and Medicare) and their influence on the doctor-patient relationship will be included. The ADA "Principles of Ethics and Code of Professional Conduct" will continue to serve as a resource for these discussions, along with other sources from the professional literature.

Evidence-Based Dental Practice (CDMXXXX)

This course prepares students to ask questions, think critically, and to make sound judgments regarding the acceptance of new knowledge, products, and procedures in private practice. Students acquire a basic understanding of clinical research methods, epidemiology, and statistical procedures with focus on the knowledge and skills associated with evidence-based practice. Students learn how to identify uncertainties in patient care, formulate questions in the PICO format (Problem/Patient, Intervention, Comparison, Outcome), conduct searches of electronic databases, and critically appraise research reported in articles. Based on patients they have treated in the clinic, controversies in dental therapy and cases provided by the faculty, students write PICO questions to guide

exploration of the literature, conduct searches of electronic data bases, appraise found information and develop and present Critically Appraised Topic Summaries (CATs).

Foundations of Restorative Dentistry 2 – (CDMXXXX)

See the course synopsis presented in Year One.

Pathology of the Head and Neck (CDMXXXX)

During this course, students will learn the etiology, pathological processes, and clinical characteristics of diseases affecting the head and neck including the oral cavity. Students will also learn the biological and chemical phenomenon occurring in the oral cavity and explore the functions, secretions and diagnostic uses of saliva.

Diagnosis and Treatment Planning (CDMXXXX)

In this course, students develop the capacity to analyze data obtained from patient assessments, synthesize this information into a diagnosis and create a treatment strategy to address the patient's oral health problems. During conferences, students work in teams to evaluate the dental and medical problems of patients, develop an assessment and create a treatment plan to provide needed dental care within the context of the patient's overall health. Each team presents their assessment of the patient and their plans which are evaluated by faculty members facilitating each conference. Students participate in an OSCE where they interview and exam real patients, write assessments of the patients' conditions and propose next steps for further diagnostic testing and therapy.

Fundamentals of Oral Imaging Technique and Interpretation (CDMXXXX)

Students gain experience in intraoral imaging (radiographic and digital) techniques and develop the capacity to obtain various types of diagnostic images. In addition, students gain experience in recognizing normal anatomic landmarks and learn about dental materials, technical errors and common dental diseases that can be detected on intraoral and extraoral images. Students develop skills in using radiographic information combined with history and clinical data to develop a comprehensive treatment plan. Students also participate in simulations devoted to lesion recognition and characterization and generation of a diagnosis for pathologic entities.

Clinical Fundamentals 2 (CDMXXXX)

In Clinical Fundamentals 2, students function in the UCF College of Dental Medicine Primary Dental Care Clinic as chairside assistants for upper classmen, or for faculty members during the initial years of the school. Students also participate in clinic group meetings with faculty, and ultimately with upper class students as the school matures, to acquire understanding of patient scheduling methods, clinic operations and the interaction among faculty, students and clinic staff. Students acquire skills in dental imaging, practice conducting oral examinations on patients using skills learned in *Patient Assessment*, learn to apply rubber dams and learn how to make alginate impressions, manipulate dental materials and use disclosing tablets. Dental students are expected to matriculate with basic life support provider certification and will recertify in this course.

Oral and Maxillofacial Surgery (includes Local Anesthesia and Nitrous Oxide) (CDMXXXX)

This course prepares students for the management of uncomplicated extractions within the scope of practice of a general dentist. The first component of the course addresses management of patients' anxiety and pain using local anesthesia and nitrous oxide. This

course will include instruction, demonstration, and practice of pain and anxiety control using local anesthetics and nitrous oxide. It will include pharmacology of local anesthesia and nitrous oxide, physical and emotional evaluation of patients, anatomy and neurophysiology, assessment of efficacy of the drugs, and the management of related medical emergencies. In addition, instruction will cover deep sedation, general anesthesia, chronic pain, and techniques of control. In the second component, students assist upperclassmen with tooth extractions and perform supervised extractions near the end of the course.

Clinical Medicine for General Dentists (CDMXXXX)

The course goal is to develop students' ability to recognize the reciprocal influences of oral and systemic disease, evaluate the patient's emotional and physical status, and develop preventive and treatment strategies to assure appropriate patient management. An important outcome is to raise students' awareness of medical diseases that may be evident when interviewing and examining dental patients so that appropriate patient consultation and referral to medical providers can occur in a timely manner. Students will learn pathophysiology of diseases and abnormalities of special interest to dentists, the signs and symptoms, including oral manifestations, of systemic diseases frequently encountered in the general population, the medical and/or pharmacological management of commonly encountered diseases, and learn diagnostic and dental therapeutic strategies for the medically compromised patient.

Dental Practice Readiness 2 (CDMXXXX)

In the second year DPRC course, students explore dental office planning including developing objectives for the practice that are consistent with the dentist's overall career vision and mission statement for the practice, floor plan options and design considerations, evaluating and purchasing dental equipment and supplies, and office decor/ furnishings. Students learn how to conduct a SWOT analysis (strengths, weaknesses, opportunities and threats) and use this process to analyze simulated dental practices for viability. The Year Two DPRC also introduces students to dental office financial planning including cash flow and income statements, budgeting principles, and monitoring strategies.

Pharmacology for General Dentists (CDMXXXX)

This course will prepare dental students for the use and management of drug therapy in general practice. Pharmacotherapy is an integral component of medical and dental care and impacts a majority of the educational standards of the Commission on Dental Accreditation. General dentists prescribe several classes of drugs, including, anti-anxiety agents, antibiotics, pain and inflammation control, and dental disease prevention therapies, and thus, need to be familiar with principles of drug action and selection. General dentists also may use drugs in emergency treatment of allergic reactions, cardiovascular events, or seizures. Dentists manage patients under pharmacological treatment by other health professionals.

Pediatric Dentistry (CDMXXXX)

This course prepares dental students to provide primary care to infant, child, and adolescent patients. Students learn diagnostic, preventive, and restorative procedures for pediatric and adolescent patients while applying age-appropriate behavior management techniques. Students learn verbal and nonverbal skills for effective communication with the patient and the parent/care-taker. Emphasis is placed on normal and abnormal growth and development, conducting an infant oral exam, etiology, impact and prevention of early

childhood caries, preventive strategies via sealants and resin restorations, dose calculation for local anesthesia in children and adolescents, and assessment and treatment of traumatic dental injuries in children and adolescents. Students will complete a pediatric dentistry clinical rotation during the 4th year to augment this course.

Orthodontics (CDMXXXX)

The goal of this course is to enable students to evaluate the dentofacial complex and occlusion, recognize abnormal growth and development that result in malocclusion, and provide a preliminary diagnosis. Emphasis is placed on assessment techniques used in orthodontics. Students analyze cases depicting patients with abnormal development and perform assessments which are presented and discussed in conferences. Students study the biology of tooth movement and learn about orthodontic force systems. For orthodontic treatment, students learn the biomechanical design principles for removable, fixed and invisible appliances, and for skeletal expansion appliances. Adjunctive and surgical orthodontic treatments are reviewed and periodontal considerations in orthodontic therapy are presented.

Dental Public Health 2 - Biostatistics and Epidemiology (CDMXXXX)

The second year dental public health course focuses on biostatistics and the role of data in public health assessment and planning. Students learn and practice several statistical concepts by analyzing research and epidemiological reports: organization and presentation of data, frequency distribution, central tendency, probability, central limit theorem, hypothesis testing, parametric tests, non-parametric tests, and regression analysis. Students also review the most commonly used statistical tests reported in the dental and public health literature.

Endodontics (CDMXXXX)

In this course, students acquire the knowledge and skills needed to manage pulpal and periapical disease of endodontic origin. Students begin by reviewing pulp biology including embryology, histology, and tooth anatomy as well as endodontic microbiology. Students then learn diagnostic techniques including recognition of clinical symptoms, endodontic evaluation procedures, and radiographic interpretation. Students also learn how to assess the prognosis of endodontically treated teeth and how to identify problems that should be referred to a specialist. During preclinical lab experiences, students learn how to access, clean, and shape, and obturate root canals using acrylic root canal models and sterilized extracted teeth.

Periodontal Therapy (CDMXXXX)

The purpose of this course is to introduce students to the concepts of clinical periodontics involving diagnostic procedures and implementation of treatment for patients on prophylaxis recalls (Type I cases – Gingivitis). During this course, students will learn: (1) how to diagnose the earliest gingival inflammatory lesion, gingivitis, and recognize its signs and symptoms and underlying etiology; (2) rationale for treatment of gingivitis, and treatment methods; provide treatment for gingivitis and oral hygiene instructions in order to prevent periodontal disease; and (4) the importance of and mechanism for implementing a periodontal recall program. In labs and clinic sessions, students will work in pairs to review patients' medical histories, perform examinations (periodontal charting, intraoral exam, extraoral exam), establish periodontal diagnoses, and perform oral prophylaxis on fellow students, as well as UCF College of Dental Medicine patients.

Oral Pathology (CDMXXXX)

During this course, students learn and practice diagnostic processes and develop differential diagnoses for clinical presentations of oral lesions: white, red, pigmented and ulcerative lesions; soft tissue masses, papillary lesions, radiolucent and radiopaque lesions of the jaws, dental anomalies, cutaneous lesions, neurological disorders, and facial pain. The goals for the course are to enable students to use a systematic approach for evaluation and diagnosis of oral diseases, formulate accurate differential diagnoses for oral diseases encountered in dental practice, and describe clinical management, treatment options and prognosis for diseases affecting the oral and maxillofacial complex.

Behavioral Sciences (CDMXXXX)

Students learn the behavioral aspects of dental care including building therapeutic relationships and communicating effectively with patients, maintaining patient confidentiality and complying with informed consent guidelines, and communicating clearly and effectively with clinical staff, faculty, and student colleagues. Students identify potential sources of stress and conflict for both patients and providers. Students are introduced to conflict resolution techniques and practice these in simulation exercises. In role play exercises, students analyze and use strategies to resolve communications problems between providers, between students, and between students and patients. Students assess cultural influences on how patients perceive and value health care. Behavioral management strategies for addressing patient compliance, anxiety, and counterproductive behavior in children, adolescents, adults and the elderly are introduced and practiced by students.

Advanced Patient Assessment (CDMXXXX)

In this course, students develop the capacity to analyze data obtained from patient assessments, synthesize this information into a diagnosis, and create a treatment strategy to address the patient's oral health problems. During small groups, student teams evaluate the dental and medical problems of simulated patients, develop an assessment based on available data, and create a treatment plan for dental care within the context of the patient's overall health. Each team presents their assessment of the patient and their plans which are evaluated by faculty members.

Patient Care in UCF College of Dental Medicine Primary Dental Care Clinic (CDMXXXX)

The heart of the D.M.D. program students' learning experience will be the primary care clinic that begins with 2-3 clinic sessions per week in the second half of the sophomore year and expands to 7-8 halfdays (21-27 hours per week) during the junior and senior year as the students add knowledge and skill in different areas that comprise general dental practice. Students will progressively acquire clinical skills in assessment and treatment of oral health problems within the scope of general dentistry as they progress semester by semester through the Primary Dental Care Clinic. Conceptually, the Primary Dental Care Clinic represents the application component of the students' overall learning experiences, beginning with acquisition of foundation knowledge in freshman and sophomore year courses, and progressing to clinical simulation exercises to learn instrumentation and related techniques that develop the fine motor control needed to execute certain dental procedures. Beginning in the second year, students have the opportunity to apply their accumulated knowledge and skills to direct patient care under supervision of clinical attending faculty. Additionally, the process of assessing patients' oral health problems and planning dental care allows the students to assimilate and use pathophysiological concepts introduced in the Biomedical Foundations Theme. Dental students will be organized into

Clinical Practice Teams (CPTs) based on a student to faculty ratio of six to one. Each CPT will be comprised of 10 second year students, 10 third year students and 10 fourth year students, and 5-6 faculty members. For most clinical sessions, the Team will be comprised of 10 third year students and 8 - 10 fourth year students working with four or five clinical faculty. Typically, one or more fourth year students will be on a rotation in a different clinic area. Second year students will be in the clinic during the second half of the Year Two on a limited basis, primarily when third or fourth year students are in conferences or on rotations. Each CPT will be managed by two full-time clinical faculty members that provide students with consistent mentoring and assessment and also ensure continuity of supervision for patient care and student performance. One faculty member serves as the team leader and another as the assistant team leader. Each CPT will have an assigned family of patients, and the students and faculty members of that team will collectively assume responsibility for providing the health care needed to address the patients' needs. Each student will serve as a primary provider his/her family of patients and will coordinate the care for each of their patients. Each team will have a patient care coordinator and a scheduler/administrative assistant. Attainment of competency and readiness to move ahead to more sophisticated levels of patient care will be assessed by a series of competency examinations coordinated by the CPTs. When supervising faculty certify that the student is ready for a competency assessment in a particular area of dental care, a patient will be selected from the patient family of the students' group practice and the student will provide the indicated dental therapy under close observation by two faculty members who will provide a joint evaluation using standardized assessment criteria. Students will be expected to demonstrate satisfactory performance on approximately 20 competency examinations during the clinical phase of the curriculum during Years Three and Four.

Clinical Practice Team Conference 1 (CDMXXXX)

An integrative learning experience for dental students during the 2nd- 4th years will be the weekly Clinical Practice Team (CPT) conference which students attend and play progressively more active roles as they advance through the curriculum. Each CPT will have weekly conferences for case assessments led by students, special topic presentations by dental specialists, and discuss management of the team's patient care activities including patient assignment and scheduling, group problem-solving, review of treatment outcomes, and information sharing related to clinic operations. The CPT conferences will enable students to participate in patient assessment and treatment planning activities and allow them to contribute to the logistical coordination that underlies the overall disposition of health care services in the Primary Dental Care Clinic. During the case assessment sessions, students will present patients they are treating in the clinic who have challenging dental problems for discussion of diagnostic and therapeutic strategies. For these presentations, students will conduct a literature review pertinent to the patient's condition and include their findings in the conference.

Community Oral Health Service Learning Project (CDMXXXX)

Student teams will complete a service learning project in the community, for example, conducting health fairs and other wellness promotion events for the community, or conducting oral health screenings at schools and elderly care facilities. Students will submit a plan for their service learning activity and work in collaboration with health care professionals and other individuals in the community to implement these projects which are documented with a PowerPoint presentation including photos of the event, a summary report, and an evaluation.

****Year Two Remediation Program**

Four weeks at the conclusion of year two will be available for student remediation. The year two remediation will be conducted in a similar format as described for the remediation program for Year One.

Year Three

Ethical and Professional Practice 3 (CDMXXXX)

Through seminars and case-based scenarios, third-year students will explore contemporary issues of professionalism and ethics. Discussions will focus on professional employment contracts, marketing, professional fees and collection of debts, patient termination, and other related risk management issues that affect clinical decision-making and patient care. Issues pertaining to the chemically-impaired patient or colleague will be included. To reinforce the Ethics and Professional Practice Curriculum, the weekly CPT Conferences will include patient scenarios that address ethics and professionalism. Students will also identify ethical issues and dilemma they have encountered during patient care in the clinic and present/discuss these in seminars in this course.

Dental Practice Readiness 3 (CDMXXXX)

In the third year DPRCE course, dental students explore practice development strategies by analyzing approaches for internal and external marketing of the practice and its services, and assess different models and strategies for engaging in community service. Students learn and practice, in simulations, methods for selecting practice locations through analysis of community environment. Principles of site selection are reviewed and basic concepts and issues associated with practice construction or re-modeling are reviewed augmented by personal accounts from dentists in the community who share their experience related to determining where to locate a dental practice. Students learn about associateship contracts, methods of valuing practices, business systems for the office, computer utilization in private practice, personal and business insurance needs, OSHA compliance and third-party reimbursement. A major component of the Year Three DPRC course is devoted to dental office management where students learn principles and strategies for patient scheduling, recruiting, training and evaluating office staff, developing and applying personnel policies to create a positive work environment and considerations in selecting associate dentists and dental hygienists.

Dental Public Health 3 - Oral Health Care Systems (CDMXXXX)

During this course, students learn how oral health care and medical care systems are organized and explore the structural, financial and personnel aspects of contemporary dental practices in the United States. Interactions among dentists, physicians, nurses and pharmacists are analyzed via scenarios. Students are introduced to methods used by health services planners to develop, implement and evaluate community health programs, examine factors influencing formulation of dental health policies and learn about professional organizations for dentist and other health care providers. Students acquire knowledge about three key elements of oral health care systems (structure, financing, and personnel) and learn about the interaction of these components. Students compare models of oral health care systems, including preferred provider organizations and health maintenance organizations and develop an understanding of how dental care is financed.

Special and Vulnerable Patient Populations 1 (CDMXXXX)

The goal of this course and a companion course in the fourth year is to introduce students to the oral health care needs of special patient populations including the elderly and individuals with sensory, physical disabilities and limitations, and developmental impairments (cognitive, psychological, social, physical). The oral health of vulnerable and underserved populations in the community including homeless and transient individuals will also be a focus. The third year course focuses on the dental treatment of elderly patients. The geriatric population includes individuals who are frail and elderly as well as healthy and vigorous senior citizens. Students will explore treatment considerations, behavioral and communication strategies, and physical adaptation of the clinical environment for patients who are physically challenged or have visual and hearing impairment. Students will learn esthetic considerations for the aging population and issues associated with providing dental care for chronically ill, homebound, and institutionalized patients. Students will visit elderly care and extended care facilities.

Management of Medical Emergencies (CDMXXXX)

During this course, dental students learn common medical emergencies that may occur in the dental setting including syncope, allergy, anaphylaxis, hyperventilation, hypoglycemia, seizure, asthma, bronchospasm, angina pectoris, acute myocardial infarction, cardiac arrest, and stroke. By means of case studies, students learn symptoms, pathophysiology, prevention, and management for medical emergencies. Students learn the medical emergency drug kit and equipment and participate in simulations to rehearse application of emergency management techniques. Students also review assessment for potential medical problems, basic life support, and airway management.

Integrated Clinical Science (ICS) Seminar 1 (CDMXXXX)

This course emphasizes multidisciplinary patient care, evidence-based care, and technological advances in patient assessment and treatment. ICS is team taught by general dentists and faculty from endodontics, oral surgery, orthodontics, periodontics, pharmacology, and prosthodontics. Each conference begins with a case depicting treatment challenges with focus on emerging research and technologies that can be applied to the patient's problem. Disorders and therapy that are cross disciplinary are emphasized such as occlusion and temporomandibular disorders, orofacial pain, and oral cancer. During ICS Conferences, students also will learn about advanced diagnostic and therapeutic techniques in each dental specialty area. ICS runs throughout the 3rd and 4th years to help students blend learning and clinical experiences from different components of general dentistry practice.

Patient Care in UCF College of Dental Medicine Primary Dental Care Clinic (CDMXXXX)

See the previous course description in Year Two.

Clinical Practice Team Conference (CDMXXXX)

See the previous course description in Year Two.

Urgent Care Rotation 1 (Dental Emergency Care) (CDMXXXX)

Third and fourth year students will complete a one week rotation in the College of Dental Medicine Urgent Care clinical area each year, and may rotate to this clinic at other times as needed based on number of patient seeking assessment and treatment for acute pain, trauma, fractures, oral infections, damaged appliances, and other dental problems. The

Urgent Care Clinic will accept walk-in patients and will function as a primary means for community access to dental care for emergent dental problems. A faculty member will be designated as Director of Urgent Care and will supervise students' patient care activities. Patients with urgent dental care needs that are beyond the capacity of the students and/or the time availability of the supervising faculty will be referred to dental specialists in the community.

Biomedical and Clinical Science Integration Seminar (CDMXXXX)

This is a case-based clinicopathologic conference. The goal of this course is to help dental students understand the biological basis of dental disease, practice assessment of clinical findings, and sharpen their diagnostic skills and information-seeking skills using technology. Students will present case reports of oral diseases that have been encountered as part of their clinical experience. Responsibility for conducting the case-based conference will rotate among the CPTs. Students scheduled to conduct each case conference will select cases from their patient pool, with faculty guidance, to present to all other CPTs. Students and faculty members at the designated lead CPT will guide and moderate case assessment and present a summary to conclude the class. Oral pathology, basic science, and other clinical faculty will help students integrate biological and clinical concepts pertinent to understanding the patient's problem.

Biomedical and Clinical Science Research Practicum (CDMXXXX)

The goal of this course is to enhance students' research skills and enable them to become more familiar with the scientific method and its role in improving overall health and patient care. After reviewing principles of research study design and statistical analyses, student teams will work with faculty mentors to: (1) identify a gap in current biomedical knowledge; (2) develop a research question related to that gap; (3) review existing literature; (4) design a study protocol, including data collection methods and statistical tests/analyses, that will produce an answer to the question; and (5) present their project via a PowerPoint presentation to other student - faculty teams for feedback and suggestions. An ultimate outcome of the Biomedical and Clinical Science Research Practicum is for students to develop research abstracts that can be submitted to AADR, ADEA, and other associations for presentation.

****Year Three Remediation Program**

For all didactic courses in Year Three where student attainment of course objectives is measured primarily by written assessments, remediation will be similar to Years One and Two. Students needing to remediate clinical competencies will have four weeks available to participate in a customized and prescribed clinical activities intended to enhance their clinical skills and enable them to demonstrate their readiness to advance to the next academic year. These activities may include simulation, direct patient care, or a combination thereof. For students with deficiencies in clinical competencies and other areas of clinical performance, the year three remediation program will culminate in a formal assessment of clinical skills. Because the time available for summer remediation is limited, students will be allowed to remediate only a designated number of clinical competencies during this time.

Year Four

Ethical and Professional Practice 4 (CDMXXXX)

The final component of the Ethical Practice Curriculum provides students with an understanding of the ethical, moral, and legal framework for the practice of dentistry

nationally and within Florida. The rules and regulations pertaining to the practice of dentistry in Florida will be reviewed in detail. The function and the impact of the legal system upon the practice of dentistry will be described. Risk management issues will be discussed and risk prevention strategies presented. Specific focus will be placed on ethical and legal issues examined in case discussions including informed consent, patient confidentiality, worker safety, managing patients with disabilities, and sexual harassment.

Dental Practice Readiness 4 (CDMXXXX)

In the fourth year DPRC course, dental students focus on three topics: (1) producing a professional application for a bank loan to start a simulated dental practice, (2) analyzing the current economic environment for dental practice, and (3) laws and regulations governing dental practice nationally and in the state of Florida. For the bank loan application, students use information and material that they have developed in previous years of the DPRC including a professional resume/CV, vision and mission statements for a desired dental practice, practice location, characteristics and services, a SWOT analysis of the projected practice, and an operating budget. The bank loan application includes an executive summary, practice philosophy and scope, financial statements, and income/expense projections. Students' applications are evaluated by course instructors who provide feedback and enhancement recommendations. During this course, students also explore the impact of national and state health policies on dental practices and learn factors to consider in assessing the financial climate of a community.

Special and Vulnerable Patient Populations 2 (CDMXXXX)

Students will explore issues related to oral health care for patients with cognitive or physical impairment, limited communication, psychological disorders, and behavioral challenges. Assessment and treatment planning for patients with complex disabilities and medical comorbidities is addressed through case studies. Topics include: determining capacity for dental treatment, planning and implementing dental treatment for individuals with impairments and medical co-morbidities, patient aids for home dental care for medically, physically or cognitively challenged persons, dental care for chronically ill, homebound and institutionalized patients, physical adaptation of the clinical environment for patients who are physically challenged or have visual and hearing impairment, and dental office design for compliance with the Americans with Disabilities Act.

Integrated Clinical Sciences (ICS) Seminar 2 (CDMXXXX)

The 4th year ICS focuses on oral oncology, orofacial pain, advanced education in pharmacotherapeutics, and interpretation of imaging studies. The ICS modules on orofacial pain, oral oncology pharmacotherapeutics, and image assessment are described below.

Orofacial Pain: Students learn the etiology, diagnosis, and interdisciplinary management of disorders that cause chronic facial pain. These include disorders of the temporomandibular joint, facial and masticatory muscles, and nerves and vasculature of the orofacial regions. To reinforce concepts, students analyze cases depicting patients with facial pain and develop treatment plans.

Oral Oncology: Students analyze cases to explore the detection of oral cancer and cancer treatment modalities; learn dental aspects of surgical reconstruction and prosthetic reconstruction following cancer surgery; and discuss management of the patient prior to, during, and following head and neck radiation and/or chemotherapy.

Pharmacotherapeutics: These seminars review principles of pharmacology, pain management, infection, systemic diseases, and associated adverse drug events. In case scenarios, students use drug databases to investigate potential drug interactions and adverse side effects. Student teams also investigate pharmacological questions based on a patient's health status and medication history, including over-the-counter products.

Advanced Imaging and Interpretation: These seminars address panoramic and extraoral imaging, advances in digital radiographic imaging, and interpretation of images. Seminars are based on case scenarios where students review medical histories, clinical findings, and radiographic images in order to generate differential diagnoses.

Hospital Dentistry Rotation (CDMXXXX)

This course will provide dental students with clinical experience for elderly, medically compromised, special needs, and intact patients in a hospital dental clinic. Through the clinical experience in a hospital and in the emergency department, students will develop skills in management of patients with psychological disturbance, complex medical history, polypharmacy for multiple disorders, and physical disabilities. Students investigate patients' medical status and assess patients' abilities to withstand dental care. Students also learn about the admitting and credentialing of dentists in a hospital.

Clinical Rotations: Oral Surgery Rotation (CDMXXXX), Pediatric Dentistry Rotation (CDMXXXX), and Clinical Elective Rotation (CDMXXXX)

Fourth year students will complete three clinical rotations to allow focused learning and skill development. They will complete a two week Pediatric Dentistry Rotation focusing on oral health care for infants, children, and adolescents. The Oral Surgery Rotation will be one week. Students can select a Clinical Elective Rotation, from a roster of available rotations, focusing on an area of dentistry of particular interest with approval of the students' CPT Leader. During these rotations, students will receive training via case-based seminars and supervised patient care

VII. Using the table below, provide a complete timetable specific to seeking accreditation, indicating all relevant milestones along the way to full accreditation.

The following table identifies the activities and associated timeline for achieving full accreditation of the D.M.D. program by the Commission on Dental Accreditation (CODA).

Table VII.1. Accreditation Timetable for D.M.D. Program

Accreditation Activity/Milestones	Timeline/Date Accomplished
Approval by BOG	November 2011
BOG proposal refined by nationally recognized group of advisors and development of application for initial accreditation from the Commission on Dental Accreditation (CODA) begins	November 2011 - March 2012
Search for Dean of College of Dental Medicine	November 2011 - March 2012
Search for three Associate Deans	January - July 2012
Dental Education Summit is held at UCF to bring internal and external partners together to discuss program	July 2012
Dean and senior administrators hired	July 2012

Accreditation Activity/Milestones	Timeline/Date Accomplished
Refinement of the application for Initial Accreditation	March - September 2012
Submit initial accreditation application to CODA	September 2012
Department chairs hired; faculty hiring begins	July - September 2012
CODA Site Visit	Spring 2013
Site Visit Team Submits Report and Recommendations to CODA; CODA reviews and may request additional revisions	Spring 2013
CODA decision	July 2013
Student application cycle for dental schools begins	June 1, 2013 – February 1, 2014
Pending initial accreditation by CODA, first class enrolls	Fall 2014
First class takes NBED Part I	Spring 2015
Second class admitted	Fall 2015
Second stage of Accreditation completed	Fall 2015
Second class takes NBED Part I	Spring 2016
Third class admitted	Fall 2016
Third class takes NBED Part I	Spring 2017
Fourth class starts with 100 students; total enrollment is 355 students	Fall 2017
Full accreditation achieved	Fall 2017
First class of students graduate	Spring 2018

VIII. Briefly describe the anticipated delivery system for the proposed program (e.g., traditional delivery on main campus; traditional delivery at branch campuses or centers; or nontraditional delivery such as distance or distributed learning). If the proposed delivery system will require specialized services or greater than normal financial support, include projected costs in Table 2 in Appendix A. Provide a narrative describing the feasibility of delivering the proposed program through collaboration with other universities, both public and private. Cite specific queries made of other institutions with respect to shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.

A new, 120,000 square foot Dental Education building will be constructed at the UCF Health Sciences Campus at Lake Nona. Scheduled to be completed in July 2014, it will house classrooms, a simulation lab, a Primary Dental Care Clinic with 200 chairs, and office space for faculty, staff, and students.

All primary instruction, including clinical education, will occur in this facility and in the adjacent Medical Education building, where the library and Anatomy Lab is located. As the D.M.D. program matures over the first ten years of operation, educational and patient care rotations will be developed in the community to enhance the students' learning experiences.

Most instruction will be face-to-face and held in lecture rooms. There will be a simulation laboratory to expose students to clinical procedures. All clinical skills will be developed in the Primary Dental Care Clinic. Students will also have service learning experiences, many of which will take place in the community-based health clinics, providing dental care to the underserved locally or internationally.

IX. Faculty Participation

- A. In the table below list all existing and anticipated ranked (not visiting or adjunct) faculty who will participate in the proposed program in any planning year(s), in the first year of student enrollment, and in the year in which full enrollment is attained. For each faculty member indicate rank and specialty/area of administrative responsibility, and whether each will be primarily housed in the College of Dentistry or off-site in clinical/education capacities. Enter an individual row for each faculty. The number of faculty listed, when added together, should equal the total number expected by the first year of full enrollment.

Each source of faculty members will be discussed and their capabilities highlighted in this section. The College of Dental Medicine faculty will be hired, as are all faculty members at UCF, using national searches to find the best, most qualified individuals. The dean of the College of Dental Medicine will make the hiring decisions based upon guidelines provided by the Commission on Dental Accreditation. The table below shows the plan for hiring faculty during the planning years (2011, 2012, 2013), the additional faculty hired in advance of the first year of enrollment (2014), and the additional faculty hired in advance of achieving full enrollment (2015, 2016, 2017, 2018).

Table IX.1. Anticipated Ranked Faculty

Ranked Faculty	
Faculty for Planning Years (11, 12, 13)	Physical Academic Home
Professor/Biochemistry	College of Dental Medicine
Professor/Physiology/ Anatomy	College of Dental Medicine
Professor/Microbiology	College of Dental Medicine
Professor/Pathology	College of Dental Medicine
Professor/Histology	College of Dental Medicine
Professor/Radiology	College of Dental Medicine
Assistant or Associate/Biochemistry	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Additional Faculty for Year 1	Physical Academic Home
Assistant or Associate/Physiology/ Anatomy	College of Dental Medicine
Assistant or Associate/Biochemistry	College of Dental Medicine
Assistant or Associate/Pathology	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Professor Dental/Surgeon	College of Dental Medicine

Additional Faculty for Full Enrollment (Hired from 2015 - 2018)	Physical Academic Home
Assistant or Associate/Histology	College of Dental Medicine
Assistant or Associate/Radiology	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Professor/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Assistant or Associate/General Dentistry-All areas	College of Dental Medicine
Professor/Dental Surgeon	College of Dental Medicine
Professor/Dental Surgeon	College of Dental Medicine
Assistant or Associate/Dental Surgeon	College of Dental Medicine
Assistant or Associate/Dental Surgeon	College of Dental Medicine
Professor/Dental Surgeon	College of Dental Medicine
Assistant or Associate/Dental Surgeon	College of Dental Medicine
Assistant or Associate/Dental Surgeon	College of Dental Medicine

New Basic Science Faculty in the College of Dental Medicine

New basic science faculty will be hired gradually over the next four years, requiring the addition of 12 faculty members with expertise in histology, physiology, anatomy, biochemistry, radiology, microbiology, pathology (note that pathology can also be considered clinical), and pharmacology. All assignments will be at 1.0 FTE. All faculty members will be active in research (at least 20 percent) as well as teaching and service (80 percent). Many of these basic science disciplines are also taught in the College of Medicine

and it is anticipated that existing basic science faculty members will be available to supplement and collaborate with the new hires for the dental college.

New Clinical Faculty in the College of Dental Medicine

New clinical science faculty will be hired gradually over the next seven years, requiring the addition of 45 dental science faculty members (D.M.D. or D.D.S.) with expertise in general, operative, and restorative dentistry, pediatric dentistry, prosthodontics, periodontics, and orthodontics. In addition, the dean's staff consisting of the dean and three associate deans with faculty rank (academic affairs, clinical affairs, and student affairs) will be hired during the first planning year. They will begin to create the new college, its procedures and practices, and begin to assemble faculty and staff to develop the curriculum. All four of the dean's office members are employed at 1.0 FTE.

The dental college will be able to benefit from the existing centralized UCF Health Sciences Campus at Lake Nona leadership (e.g., Development, Administration and Finance, Planning and Knowledge Management, Health Sciences Library, Legal, and Research) located in the adjacent College of Medicine Medical Education building. The College of Dental Medicine will provide additional staffing to these areas to support the increased workload. Total A&P and USPS staffing for the College of Dental Medicine is estimated at 49 FTE.

Also, it is anticipated that additional clinical faculty from the community will participate as affiliated and volunteer faculty members, contributing to joint clinical trial studies and offering the occasional lecture in their fields of expertise.

UCF has also built strong external partnerships with the major health service providers in this region-- Orlando VA Medical Center, Nemours Children's Hospital, Orlando Health and Florida Hospital. These partners participate in instructional programs at UCF for the College of Medicine and it is anticipated that relationships allowing dental clinical trials and dental surgery privileges will develop.

Existing efforts to build strong collaborative research and education initiatives in biomedical and clinical sciences with participation from a variety of departments and colleges as well as the Orlando community has prepared UCF to launch a major effort in the training of dentists.

UCF Faculty Who May Be Joint Faculty or Collaborators in the UCF College of Dental Medicine

In addition to faculty members from the College of Medicine, there are internal partnerships with other technology and research initiatives at UCF to solve major health problems and there is a particular emphasis on research in cardiovascular disease. The interaction of cardiovascular and dental disease is now receiving increased attention and this will be an important area of mutual interest for our basic science and clinical faculty in the College of Medicine and the College of Dental Medicine. In addition, UCF has faculty members throughout the university who will be interested in participating in dental research and will collaborate with the dental college faculty.

Faculty Recruitment

Recruitment for faculty members involves establishing search committees that will be used to recruit, review, and eventually make recommendations about faculty hires. Initially, the dean and associate deans will be hired. They will then begin to hire chairs and faculty members. The search for the new dean will be crucial in supporting the institution's ability to further hire the administrative staff and faculty, and the university will seek an

individual who is well-known and has an outstanding record. UCF will use a private agency to assist with the search for the dean and associate deans. UCF will advertise widely in dental association publications and attend national conferences for the purpose of discussing UCF's needs and conducting interviews.

It is expected that recruitment will be accomplished through personal contacts and local and national advertising. The dean, associate deans, and department chairs will notify colleagues at other dental colleges and ask for names of those who may be interested in coming to UCF. Ads will be placed in appropriate venues. Since hiring will occur at all levels, from professor to assistant professor, some of the faculty members that UCF will hire will be faculty at other universities who want the opportunity to start a new college. There are many faculty members who are interested in new opportunities, either for advancement or because they would enjoy the challenge of designing a new curriculum that may lead to better training of dentists.

Orlando is an excellent location for new faculty members who would be attracted to the metropolitan area and its opportunities. Some specialties will be easier to find than others. However, UCF has four strong research groups that should serve as enticement to specialists in these areas. The four research groups will represent the strongest biomedical areas of research at UCF: cancer, infectious diseases, neurodegenerative disorders, and cardiovascular disease.

- B. In the table below list the number of existing and anticipated adjunct faculty who will participate in the proposed program in any planning year(s), in the first year of student enrollment, and in the year in which full enrollment is attained. For each faculty member indicate rank and specialty/areas of administrative responsibility, and whether each will be primarily housed in the College of Dentistry or off-site in clinical/education capacities. Enter an individual row for each faculty. The number of faculty listed, when added together, should equal the total number expected by the first year of full enrollment.**

The college does not anticipate the use of existing or new adjunct faculty members to participate in the proposed program.

Table IX.2. Anticipated Adjunct Faculty

Unranked Faculty	
Faculty for Planning Year	Physical Academic Home
N/A	N/A
Additional Faculty for Year 1	Physical Academic Home
N/A	N/A
Additional Faculty for Full Enrollment	Physical Academic Home
N/A	N/A

C. Provide evidence that academic unit(s) potentially associated with this new degree have been productive in teaching, research, and service.

College of Medicine

The Burnett College of Biomedical Sciences was established in 2004 to further grow and promote UCF's growing interests in biomedical research with its focus on the molecular and genomic basis of diseases and therapeutics. It is now a school within the UCF College of Medicine and has 92 faculty members (54 full-time and 38 part-time) and plans to hire 12 more full-time faculty members in the next three years. Current faculty research programs are focused on the areas of cancer, cardiovascular diseases, neurodegenerative diseases, and infectious diseases. Of particular interest to the faculty is oral health and the transfer of research into clinical and population-based studies that will provide information to prevent, diagnose, and treat oral diseases. Clinical faculty and biomedical researchers would like to speed up the process of transfer of research to medical and dental practice.

Faculty members in the College of Medicine publish in prestigious journals in biomedical sciences and their scientific accomplishments have been covered by national and international media. The research that UCF currently performs in the biomedical sciences will attract top basic science faculty in the D.M.D. program to participate in the health sciences campus and may also provide research opportunities to dental students as part of their electives. The College of Dental Medicine will expand opportunities to engage in clinically related research in cooperation with its partner hospitals, community centers, and public health agencies. New dental faculty will have the opportunity to work on ongoing research projects at UCF. More faculty members will be at UCF conducting increased research, and UCF expects to increase its research infrastructure and funding with the addition of the College of Dental Medicine.

Nursing

The College of Nursing offers the B.S.N., M.S.N., D.N.P, and the Ph.D. degrees in Nursing. The program is accredited by the Commission on Collegiate Nursing Education. Laboratory space consists of instructional and research laboratories with faculty conducting research on breast cancer, patient safety, oncology nurse training, endotracheal tube cuff pressures, and home versus center weight loss after menopause. The school has 38 faculty members who have 8 ongoing research projects and conducted more than \$400,000 of research in FY09. The College of Nursing also has an extensive network of agency partners in the community and directs 14 community health centers throughout Central Florida to deliver health education to Central Florida citizens. The nursing faculty's research will be enhanced with the infusion of dental school faculty with supporting research agendas. Dental faculty and students will likely use the community health centers as well as Primary Dental Care Clinic in the Dental Education building to provide dental care for underserved citizens in Central Florida.

X. Non-Faculty Resources

- A. Describe library resources currently available to implement and/or sustain the proposed program. Provide the total number of volumes and serials available in this discipline and related fields. List major journals that are available to the university's students.**

In addition to the UCF Libraries on the Orlando campus with both virtual access and supported physical access, dental students will be provided virtual access to the health sciences library electronic resources twenty-four hours a day, seven days a week and physical access to the Harriet F. Ginsburg Health Sciences Library in the Medical Education building on a supported extended schedule until 10:00 pm on Monday-Thursday and until 5:00 pm on Friday-Sunday. Extensive study spaces available to students are placed throughout the building and have wireless internet access. Interior concourses located on all four floors of the Medical Education building have a total of 243 study spaces and the exterior on ground level has 77 covered study spaces.

Overall, resources in the UCF Libraries include 2.1 million volumes, 29,659 periodical subscriptions, 3.1 million microform units, 326,000 government documents, and 50,500 media volumes. All UCF students and faculty have electronic access to the Libraries' 27,074 electronic serial subscriptions, 593,000 e-books, and 363 electronic databases via library PCs or individual proxy access.

The libraries provide full text access to electronic journals in medical and related categories as follows: Chemistry - 1,866; Health Sciences - 5,498; and Life Sciences - 2,522. These categories include some overlap of titles.

- B. Describe additional library resources that are needed to implement and/or sustain the program through the year in which full enrollment is reached. Include projected costs of additional library resources in Table 2 in Appendix A. Include a signed statement from the Library Director that this subsection and subsection A have been reviewed and approved.**

The holdings of the UCF Libraries were analyzed using the Brandon/Hill Selected List of Print Books and Journals for the Small Medical Library, the Brandon Hill Selected List of Print Books and Journals in Allied Health, Doody's Core Titles in Health Sciences, the Medical Library Association Dental Section of Recommended Books and Journals for Clinical Dentistry, and the Medical Library Association Dental Section of Recommended Library Resources for Dental Hygiene Programs.

The compiled list of 221 books and 96 journals cover a range of subjects which include: anatomy, histology, and embryology; anesthesiology; cleft palate; communicable disease control; critical care and emergencies; dental caries; dental implants; dental materials; dental public health; endodontics; dental esthetics; forensic dentistry; geriatric dentistry; mouth neoplasms; nutrition; operative dentistry; oral biology; oral diagnosis; oral medicine; oral microbiology; oral/maxillofacial pathology; oral/maxillofacial radiology; oral surgery; orthodontics; patient care planning; pediatric dentistry; periodontics; pharmacology and therapeutics; prosthodontics; restorative dentistry; and temporomandibular joint disease.

A list of 33 core databases was compiled based on dental medicine library guides from the University of Florida Health Sciences Center Libraries Dentistry Guide, the Nova

Southeastern University Health Professions Division Library Dental Medicine Guide, and the University of Alabama Birmingham Lister Hill Library Dentistry Guide.

The Harriet F. Ginsburg Health Sciences Library and the UCF Libraries already subscribe to many of the common core databases and some of the databases are freely available. The cost for the non-subscribed databases is an estimate for unlimited site wide access for all UCF students, faculty and staff.

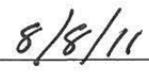
The estimated total costs are \$247,000, in the following categories:

- 221 Books: \$19,456
- 96 Journals: \$57,343 (priced for print, online, and both)
- 10 new Databases: \$170,000

It is anticipated that through negotiated pricing, the cost for the new collection will be reduced to \$175,000. In addition, the Harriet F. Ginsburg Health Sciences Library would require the addition of one full-time professional dental librarian to support the dental college. The total cost is estimated to be \$63K to \$76K, and \$76K is included in the overall budget for the dental college.



Signature of Library Director



Date

- C. Describe classroom, teaching laboratory, research laboratory, office, and all other types of space that are currently available to implement the proposed program through the year of its full enrollment.**

Current Research Facilities

The Burnett Biomedical Sciences building has laboratory facilities, including 40 eight-person research laboratories, office space for Biomedical Science faculty and staff members, and a 12,180-square-foot transgenic animal facility including immuno-compromised and quarantine rooms, a histology room, a transgenic room, and numerous rooms for the care and feeding of animals. Located in this building is an Affymetric gene array laboratory, an X-ray crystallography lab, real-time PCR equipment, a protein facility (housing characterization, proteomics, and purification laboratories), tissue culture rooms, confocal (both large and small) and other microscope rooms, an automated high speed cell sorter, a TEM/SEM facility, and a DNA sequencing facility. In addition, conference rooms, meeting rooms, storage facilities, image processing rooms, cold and dark rooms, and other common facilities will be available to researchers.

Basic science researchers in the College of Medicine and its Burnett School of Biomedical Sciences, and the College of Dental Medicine have access to these facilities.

College of Medicine Anatomy Lab

Anatomy instruction will take place in the state-of-the art Anatomy Lab in the Medical Education building. This high tech gross Anatomy Lab has 22 dissection tables supporting six students at each table. The lab capacity is 132 students.

Cafe

No cafe is currently planned for the new Dental Education building. Students, faculty, and patients will have access to the Cafe in the adjacent Medical Education building and to the developing Lake Nona town center.

Other spaces

A large auditorium that seats 356 people and a Microscopy Lab will be made available in the Medical Education building as needed for the dental program.

- D. Describe additional classroom, teaching laboratory, research laboratory, office, and all other space needed to implement and/or maintain the proposed program through the year in which full enrollment is reached. Include any projected costs. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university's fixed capital outlay priority list. Provide the estimated total project cost, gross square feet by space category, all funding sources, and the year that funding is expected to begin. Include a signed statement from the Director of Facilities that this subsection has been reviewed and approved.**

New Dental Education Building

Additional space requirements for support of the dental program will call for new construction of an instructional building of 120,000 square feet. This building will house the administrative and faculty offices of the program as well as instructional space (3-lecture

rooms), the 200-chair Primary Dental Care Clinic, simulation lab, and admissions and student services offices. The projected cost of the building is estimated to be \$42.8 million without the furnishings and fixtures. The business plan assumes the university will have an operating lease that includes a 2 percent annual escalation of the lease payment. The new building for the dental college is expected to be completed in July 2014 in advance of the first class of students.

Furnishing needs for the Dental Education building are projected to be \$2.15 million and will be added to the building costs. Equipment needs will be \$6.8 million and include dental chairs, simulation lab, Panoramic X-Ray, compressors, portable X-ray machines, and other items. Information Technology is estimated at \$2.8 million. The building will be fully wireless and students will be provided with laptops as part of their technology fee, so no computer labs are required.

New Instructional Laboratory Facilities and Equipment

The new laboratories necessary for the College of Dental Medicine will include the following:

- **Simulation Center:** Will be used to teach basic dental procedures and basic clinical skills. Equipment cost is \$3 million.
- **Classrooms.** Three classrooms seating approximately 125 students each will be used to teach basic sciences and other subjects.
- **Primary Dental Care Clinic.** A 200-chair clinic will be constructed where students will learn dental procedures under the supervision of faculty. The clinic will also house the faculty practice. The estimated equipment cost is \$3.7 million.
- **Equipment.** Panoramic X-ray (5), portable X-rays (5), and compressors (5) will be purchased for the clinic at \$200,000.
- **Information Technology.** Electronic health record, base technology infrastructure, teaching software, financial software, PC and other equipment are estimated at \$2.8 million.

New Research Facilities and Equipment

If additional equipment is needed for research, funding will be sought from federal and other sources through grants. In addition, faculty-specific equipment will be purchased with start-up funds budgeted for new basic science faculty members upon recommendation of those faculty members and approval by the dean.

New Classroom Facilities and Equipment


The classrooms will be outfitted with multimedia equipment, including high resolution projection. All classrooms will be equipped with both wired and wireless network access. The UCF Orlando campus and health sciences campus data networks operate at ten gigabits per second speed and are accessible to all UCF entities. UCF has high-speed connections to the commodity Internet, Florida LambdaRail (state research network), Internet2, and National LambdaRail.

Additional Data Processing Capability

The College of Medicine was designed to serve as the information technology hub for the UCF Health Sciences Campus at Lake Nona. The building includes a server room containing core network and telecommunications equipment that serves the college today and will be expanded to serve all future buildings on the site.

The College of Medicine has a dedicated information technology organization that collaborates effectively with UCF's central IT division. It currently spends approximately \$1,200,000 per year to provide telecommunications, servers and their maintenance, networking and support, hardware and software, lab support, maintenance, and personnel to provide computer security, and to run the student computer laboratory.

This infrastructure in the College of Medicine was built to support other UCF colleges that would be co-located at the UCF Health Sciences Campus at Lake Nona. The UCF College of Dental Medicine will hire 10.5 FTE staff members to support the information and educational technology efforts in the dental college. In addition, the College of Dental Medicine will pay part of the share of these costs (technology and staff support) per year starting at \$657,000 and stabilizing at about \$1.5 million in the tenth year.



Signature, Director of Facilities



Date

- E. Describe specialized instructional and research equipment that is currently available to implement the proposed program.**

Existing research equipment located in the College of Medicine's research space and Anatomy Lab is noted in Section X.C above.

- F. Describe additional specialized equipment needed to implement and/or sustain the proposed program through the year in which full enrollment is reached. Include projected costs of additional equipment in Table 2 in Appendix A.**

The specialized equipment that will be located in the new space is described in Section X.D above.

- G. Describe any additional special categories of resources needed to implement the program through the year in which full enrollment is reached (access to proprietary research facilities, specialized services, extended travel, etc.). Include projected costs of special resources in Table 2 in Appendix A.**

Not applicable.

- H. Describe any fellowships, scholarships, or other forms of student support to be allocated to the proposed program through the year in which full enrollment is reached. Include the projected costs in Table 2 in Appendix A.**

Many students may apply for subsidized and unsubsidized loans. UCF will raise private funds and gifts to provide scholarships to meritorious students and those with financial need. The Financial Services Office in the Office of Student Affairs in the College of Medicine, will work closely with the College of Dental Medicine to support this effort. This office proactively assists students at the Lake Nona campus in finding opportunities for fellowships or scholarships that may be available in the nation or state. This assistance is particularly important in providing good service to those from underrepresented groups who may not be aware of various financial opportunities.

- I. Describe currently available sites for internship and practicum experiences, if appropriate to the program. Describe plans to seek additional sites in Year 1 through the year in which full enrollment is reached.**

Most instruction will be face-to-face and held in lecture rooms. There will be a simulation laboratory to expose students to clinical procedures. All clinical skills will be developed in the Primary Dental Care Clinic. Students will also have required service learning experiences that may take place in the community-based health clinics, providing dental care to indigent people or internationally, and will have a some required rotations at clinics and hospitals in Year Four. The letters of support received from clinics and hospitals to date (see Appendix E2) include the following:

Table X.1. Letters of Support from Clinics and Hospitals

Clinical and Research Partnerships		
On behalf of	Letter Author	Position
Brevard County Health Department	Heidar Heshmati, M.D., P.P.H., Ph.D.	Director
Brevard Health Alliance	Lisa Gurri	CEO
Central Florida Family Health Center	Leslie Smith, D.O.	Chief Executive Officer/Chief Medical Officer
Central Florida Medical Affiliates	Robert C. Alexander	Executive Director
Central Florida Oral & Maxillofacial Surgery	Wilbur M. Davis, D.D.S.	
Community Vision	Donna Sines	Executive Director
Dental Care Access Foundation, Inc.	Julie Kestler	Executive Director
Health Care Center for the Homeless, Inc.	Bakari F. Burns, MPH, MBA	Chief Executive Officer
Health Council of East Central Florida	Kenneth Peach	Executive Director
Nemours Children's Hospital	Roger Oxendale, MBA	Chief Executive Officer
Orange County Health Department	Kevin Sherin, M.D. and Maria D. Demas, D.D.S.	Director Executive Dental Director
Orlando Health	Sherrie Sitarik	President/CEO
Primary Care Access Network	Margaret Brennan	PCAN Administrator
Sanford Burnham Medical Research Institute	Daniel Kelly, M.D.	Scientific Director
Seminole County Health Department	Michael J. Napier, M.S.	Administrator
Shepherd's Hope	Cathy Benson	President
Space Coast Foundation	Johnette Gindling	Executive Director
VA Medical Center	Timothy Liezert	Medical Director

Appendix A
TABLE 1
PROJECTED HEADCOUNT FROM POTENTIAL SOURCES

Source of Students (Non-duplicated headcount in any given year)*	Year 1		Year 2		Year 3		Year 4		(Full Enrollment)	
	HC	FTE	HC	FTE	HC	FTE	HC	FTE	HC	FTE
Individuals drawn from agencies/industries in your service area (e.g., older returning students)	0	0	0	0	0	0	0	0	0	0
Students who transfer from other graduate programs within the university**	0	0	0	0	0	0	0	0	0	0
Individuals who have recently graduated from preceding degree programs at this university	20	20	41	41	61	61	90	90	100	100
Individuals who graduated from preceding degree programs at other Florida public universities	20	20	39	39	61	61	83	83	91	91
Individuals who graduated from preceding degree programs at non-public Florida institutions	5	5	39	39	61	61	83	83	90	90
Additional in-state residents***	0	0	0	0	10	10	10	10	15	15
Additional out-of-state residents***	15	15	40	40	64	64	89	89	98	98
Additional foreign residents***	0	0	0	0	0	0	0	0	0	0
Other (Explain)***	0	0	0	0	0	0	0	0	0	0
Totals	60	60	159	159	257	257	355	355	394	394

* List projected yearly cumulative ENROLLMENTS instead of admissions

** If numbers appear in this category, they should go DOWN in later years.

*** Do not include individuals counted in any PRIOR category in a given COLUMN.

Appendix A Table 2

University of Central Florida
Proposed College of Dental Medicine
Operating Budget

	Planning Year 1 FY 2012	Planning Year 2 FY 2013	Planning Year 3 FY 2014	Year 1 FY 2015	Year 2 FY 2016	Year 3 FY 2017	Year 4 FY 2018	Year 5 FY 2019	Year 6 FY 2020	Year 7 FY 2021	Year 8 FY 2022	Year 9 FY 2023	Year 10 FY 2024
OPERATING EXPENSES													
Faculty Salary and Benefits	\$ 290,588	\$ 1,686,968	\$ 3,533,835	\$ 4,993,608	\$ 6,618,779	\$ 7,794,644	\$ 9,760,869	\$ 10,845,812	\$ 11,181,664	\$ 11,349,392	\$ 11,519,633	\$ 11,692,427	\$ 11,867,814
A&P Salary and Benefits	\$ 291,603	\$ 837,509	\$ 1,844,250	\$ 2,793,247	\$ 3,034,762	\$ 3,158,135	\$ 3,205,498	\$ 3,253,591	\$ 3,302,388	\$ 3,351,925	\$ 3,402,204	\$ 3,453,237	\$ 3,505,035
USPS Salary and Benefits	\$ 45,564	\$ 205,538	\$ 304,787	\$ 413,319	\$ 419,520	\$ 425,814	\$ 432,202	\$ 438,681	\$ 445,262	\$ 451,942	\$ 458,721	\$ 465,602	\$ 472,586
General Expenses*	\$ 879,568	\$ 972,303	\$ 966,345	\$ 2,925,984	\$ 4,288,664	\$ 5,688,309	\$ 7,194,856	\$ 7,960,083	\$ 8,194,406	\$ 8,425,460	\$ 8,663,406	\$ 8,908,210	\$ 9,160,738
Operating Capital Outlay**	\$ 1,072,500	\$ -	\$ -	\$ 10,640,800	\$ -	\$ -	\$ 886,066	\$ -	\$ 215,457	\$ -	\$ 1,244,680	\$ -	\$ -
Electronic Data Processing (IT)	\$ 672,300	\$ 607,385	\$ 902,351	\$ 1,335,142	\$ 1,420,618	\$ 1,441,926	\$ 1,463,557	\$ 1,485,507	\$ 1,507,790	\$ 1,530,407	\$ 1,553,364	\$ 1,576,664	\$ 1,600,317
Library Resources	\$ -	\$ 175,000	\$ 177,625	\$ 180,289	\$ 182,993	\$ 185,738	\$ 188,524	\$ 191,352	\$ 194,222	\$ 197,135	\$ 200,092	\$ 203,093	\$ 206,139
Total Operating Expenses	\$ 3,252,123	\$ 4,484,703	\$ 7,729,193	\$ 23,282,389	\$ 15,965,336	\$ 18,694,566	\$ 23,131,572	\$ 24,175,026	\$ 25,041,189	\$ 25,306,261	\$ 27,042,100	\$ 26,299,233	\$ 26,812,629
FACILITIES INVESTMENTS													
Rent (Leased Space / New Building)	\$ 1,050,000	\$ 1,050,000	\$ 1,050,000	\$ 3,748,959	\$ 3,823,939	\$ 3,900,418	\$ 3,978,426	\$ 4,057,995	\$ 4,139,155	\$ 4,221,938	\$ 4,306,377	\$ 4,392,505	\$ 4,480,355
Total Facilities Investments	\$ 1,050,000	\$ 1,050,000	\$ 1,050,000	\$ 3,748,959	\$ 3,823,939	\$ 3,900,418	\$ 3,978,426	\$ 4,057,995	\$ 4,139,155	\$ 4,221,938	\$ 4,306,377	\$ 4,392,505	\$ 4,480,355
Total Expenses	\$ 4,302,123	\$ 5,534,703	\$ 8,779,193	\$ 27,031,348	\$ 19,789,275	\$ 22,594,984	\$ 27,109,998	\$ 28,233,021	\$ 29,180,344	\$ 29,528,199	\$ 31,348,477	\$ 30,691,738	\$ 31,292,984
Revenue													
Tuition and Fees	\$ -	\$ -	\$ -	\$ 4,178,040	\$ 11,403,957	\$ 18,985,618	\$ 27,011,595	\$ 30,878,962	\$ 31,805,256	\$ 32,759,130	\$ 33,741,766	\$ 34,753,558	\$ 35,796,870
Financial Aid	\$ -	\$ -	\$ -	\$ 75,168	\$ 205,062	\$ 341,187	\$ 485,199	\$ 556,285	\$ 572,970	\$ 590,010	\$ 607,760	\$ 625,865	\$ 644,680
Community Donation	\$ 10,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Clinical Practice (Student and Faculty)	\$ -	\$ -	\$ 491,162	\$ 1,197,701	\$ 1,487,208	\$ 2,330,469	\$ 3,756,651	\$ 4,414,780	\$ 4,516,948	\$ 4,584,759	\$ 4,653,511	\$ 4,723,413	\$ 4,794,263
Contract and Grants	\$ -	\$ -	\$ 60,036	\$ 322,848	\$ 535,595	\$ 724,840	\$ 735,712	\$ 746,750	\$ 757,948	\$ 769,318	\$ 780,858	\$ 792,571	\$ 804,458
Total Revenue	\$ 10,000,000	\$ -	\$ 551,198	\$ 5,773,757	\$ 13,631,822	\$ 22,382,114	\$ 31,989,157	\$ 36,596,777	\$ 37,653,122	\$ 38,703,217	\$ 39,783,895	\$ 40,895,407	\$ 42,040,271
Interest Expense (Income)	\$ (131,618)	\$ (6,318)	\$ 505,050	\$ 1,222,094	\$ 2,308,162	\$ 2,462,698	\$ 2,269,709	\$ 1,964,415	\$ 1,564,517	\$ 1,121,382	\$ 609,317	\$ 108,738	\$ (529,167)
Net Income (Loss)	\$ 5,829,495	\$ (5,528,385)	\$ (8,733,045)	\$ (22,479,686)	\$ (8,465,615)	\$ (2,675,568)	\$ 2,609,450	\$ 6,399,341	\$ 6,908,261	\$ 8,053,636	\$ 7,826,101	\$ 10,094,931	\$ 11,276,454
STATE APPROPRIATIONS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Notes

*General Expenses: Office Expenses, Direct Materials, Student's Laptops & Textbooks, Research Expenses, Indirect Costs Transferred to the University, Audit, Consultants, Travel, CME

**Operating Capital Outlay: Planning Year 1 includes information technology infrastructure; Year 1 includes furniture, fixtures, dental equipment, and IT equipment; Years 4,6, and 8 includes equipment replacement based on useful life

Appendix A
Table 3

TABLE 3
ANTICIPATED REALLOCATION OF EDUCATION & GENERAL FUNDS*

Program and/or E&G account from which current funds will be reallocated during Year 1	Base before reallocation	Amount to be reallocated	Base after reallocation
no reallocation anticipated	0	0	\$0
	0	0	
	0	0	
	0	0	
	0	0	
	0	0	
Totals	\$0	\$0	\$0

* If not reallocating funds, please submit a zeroed Table 3

Appendix B

Letter from University of Florida

As of August 10, 2011, the letter from University of Florida has not been received.

There have been several conversations with the University of Florida regarding the establishment of the Doctor of Dental Medicine program at UCF. When the idea was first considered, UCF President John Hitt had a conversation with UF President Bernie Machen regarding the possibility. At that time, President Machen indicated that he would not oppose the D.M.D. program at UCF.

There have also been conversations between UCF Vice President for Medical Affairs Deborah German and UF College of Dentistry Dean Teresa Dolan regarding a D.M.D. program at UCF. Dean Dolan indicated her concern about public health issues, and although she agreed that the UCF dental college would serve some of the underserved it would not be able to solve the problem. Indeed the UF College of Dentistry has not been able to solve the problem either. Dean Dolan thought it would take statewide public health policies to address the issue of the rural and underserved population in Florida. She stated that it was not her place to decide whether a new dental school was needed but if a new dental school was approved by the BOG she thought it should be at UCF because of the university, the research that UCF is currently doing, and the synergy with the medical city. Neither of these conversations addressed the potential impact on overall or minority enrollment.

Finally, there have been several communications between UCF Provost Tony Waldrop and UF Provost Joe Glover regarding potential support or concerns regarding the proposed D.M.D. program at UCF. Provost Glover has promised a letter. That letter has not been received at the time this proposal was prepared for submission.

As noted in Section II.B, both the University of Florida and NOVA Southeastern University attract applicants and enrolled students of above average quality. Furthermore, a significant number of Florida resident applicants to a dental school are not accepted at any Florida dental schools. It is likely that the University of Florida, in particular, will not be affected by a new Doctor of Dental Medicine program at UCF.

Appendix C

College of Dental Medicine Business Plan

Business Plan Summary

The proposed D.M.D. degree program in the College of Dental Medicine at UCF will require no appropriations from the state. The UCF D.M.D. program and the associated College of Dental Medicine will primarily be supported from student tuition and fees developed using a market-rate model, clinical revenues, and research funding. The business plan assumes the use of an operating lease with a private developer who will construct a dental education building. The higher cost of an operating lease was selected to stress the business plan and ensure the revenues generated from operating the dental college were sufficient to cover its costs. UCF is exploring additional options in accordance with the Board of Governor's debt management policy for financing the building, including a bank loan or agreements with contractors interested in financing the construction.

The program and required facilities will ultimately be funded through a combination of the following sources of revenue:

- Student tuition and fees
- Student generated clinical revenue
- Research funding
- Faculty practice funds
- Private gifts and grants

As described earlier in this proposal, the D.M.D. program will directly address the projected shortage of dentists in Florida and supports UCF's goal of being America's leading partnership university and mission for enhancing economic development in the Central Florida city-state. As an integral part of the growing medical city in Lake Nona, the new dental college will partner with the community in providing needed dental care to low-income citizens in its 200-chair Primary Dental Care Clinic (Clinic), where students develop their dental skills under faculty supervision. It will partner with the UCF College of Medicine in promoting dental health and interprofessional education and with other university colleges and research institutes to enhance the state-of-the-art in dental care. It will attract faculty and staff members, students, and additional clinical partners to build on the already growing economic impact being realized in Lake Nona. Partnerships are a defining characteristic of UCF as an institution.

Through planned construction of a new dental education building on the UCF Health Sciences Campus at Lake Nona, a state-of-the-art clinical training facility will be created. Within this building there will be a 200-chair Primary Dental Care Clinic, three large classrooms, a simulation laboratory, faculty practice and patient areas, student areas, and administrative and faculty offices.

Operating Budget

The operating budget for the dental college includes three years of planning and ten years of instruction. During the three planning years, the budget provides for the phased recruitment of the initial faculty and staff members responsible for the development of the curriculum as well as the offices and procedures necessary to begin operations at least one year in advance of the course offerings.

The recruitment of incremental faculty members needed to begin basic science and clinical instruction prior to the first year of instruction are also supported in the planning years of the budget. Additional activities funded during the planning years include short-term space rental, general expenses, initial operating capital outlay, and electronic data processing to establish the information technology (IT) infrastructure. The remaining faculty and support staff members are hired in advance of each year of the program over the first four years of instruction.

The operating budget during the ten years of instruction also provides for general expenses, phased operating capital outlay, library resources, electronic data processing for IT operations, and operating lease payments for the building. The budget uses a phased approach for the recruitment of students, with an inaugural class size of 60 that increases to 100 the following year and remains at 100 thereafter. There will be 394 students at full enrollment, adjusted for an attrition of two percent. This very deliberate approach to program development, faculty and staff member hiring, and student recruitment makes it possible to complete the curriculum design and prepare the content prior to the start of the program, achieve initial accreditation from the Commission on Dental Accreditation (CODA) prior to student matriculation, and effectively phase in the required resources.

Table 2 in Appendix A contains the details of the operating budget. The budget has two major components: (1) the expenses associated with start-up and operation of the college and (2) a revenue model that does not require appropriated funds from the state. Salary costs include 100 percent of the dean and administrative positions, all basic science and clinical faculty positions, and all A&P and USPS positions needed to start and operate the college. The budget also includes an operating lease.

The university has received a pledge for a \$10,000,000 gift from a donor (see Appendix E1) that will support a significant portion of the planning activities during the first two of three planning years during which the initial faculty and staff members are hired, the curriculum is developed, the program receives initial accreditation, and the recruiting of the inaugural class is completed. The remainder of the funds will come from university sources that sustain the program until it is self-supporting, at which point the dental school revenues will repay the university. During the three planning years, all efforts will be devoted to more detailed planning and program development and no students will be enrolled. Thus, no student tuition and fee revenue will be available to pay for the expenses during the three planning years.

As shown in Table 2 in Appendix A, projected total costs in the first planning year (FY12) of the program and facilities are \$4.30 million resulting in an ending cash balance of \$5.83 million. In the second planning year (FY13), expenses will rise to \$5.53 million as the faculty and staff members are hired. In the third planning year (FY14), \$8.78 million of expenses will be devoted to hiring the additional faculty members needed to teach the program, and to support the instructional technology, computer needs, and library resources for the program. As tuition and fees are collected in FY15, and clinical revenue from faculty and student clinics is realized, income starts increasing as expense growth slows, and in FY18 the program is expected to be self-supporting.

By the tenth year of instruction (FY24), the overall expenses in constant 2011 dollars are projected to be \$31.29 million annually, with \$11.87 million used to pay faculty salaries and benefits for 57 full-time faculty members. The total revenue from tuition and fees and clinical revenue is expected to be \$42.04 million. Of that total, revenue from tuition and fees is estimated at \$35.80 million with \$7.18 million representing fees. Most of the fee revenue

will be used for technology (e.g., laptop), books, and laboratory materials for each student. Other revenues in the tenth year include recovery of 20 percent of basic science and clinical faculty salaries from external funding and the student and faculty clinical revenue generated in the Clinic and faculty practice. Using this funding model requires no state appropriations.

Given the need to recruit outstanding clinical faculty who meet the needs of the D.M.D. program, UCF anticipates that faculty recruiting will be led by the dean of the College of Dental Medicine working with an experienced consulting firm. The recruitment of the founding dean would commence immediately following authorization for the program.

An additional group of volunteer clinical faculty will include dentists at partner practices and clinics that will contribute their time in supervising UCF dental students in the Clinic, teaching occasional lectures, and providing specialized training to students. Based on the experience of the College of Medicine, which has been able to attract over 1,300 volunteer physicians, it is anticipated that there will be strong community interest in the dental program.

Facilities

As part of the plan for the College of Dental Medicine, a new 120,000 sq. ft. building will be constructed adjacent to the College of Medicine on the UCF Health Sciences Campus at Lake Nona. It is anticipated that all student clinical requirements will be completed in this new dental education building, with no need for community practice locations. A 200-chair Clinic is included in the building plans to support all student clinical requirements. The Clinic also includes a small space for a faculty practice. In addition, the building will include three large lecture halls, a simulation lab, faculty and staff office space, student space, and additional conference rooms and staff areas. The business plan assumes the university will have an operating lease that includes a 2 percent annual escalation of the lease payment. The new building for the dental college is expected to be completed in July 2014 in advance of the first class of students.

Contributions

The contributions that UCF is making to the establishment of the D.M.D. program are many and by the tenth year include the following:

- Leveraging of administrative staff support within the offices of the vice president for medical affairs and dean of the College of Medicine, including human resources, finance and accounting, information technology, educational technology, library, legal affairs, development, research, and facility operations
- Research space for basic science faculty
- Start-up costs totaling \$42.31 million from university resources that will be repaid by FY24
- Use of the existing health sciences library in the Medical Education building at the UCF Health Sciences Campus at Lake Nona
- Use of the existing Anatomy Laboratory in the Medical Education building at the UCF Health Sciences Campus at Lake Nona
- Use of larger lecture halls and other education spaces in the Medical Education building at the UCF Health Sciences Campus at Lake Nona
- Use of the existing UCF Health Sciences Campus at Lake Nona

Projected Return on Investment

The University of Central Florida Health Sciences Campus at Lake Nona is located 20 miles from the UCF main campus on 50 acres that were donated to UCF in 2006 to help establish the UCF College of Medicine. The campus currently houses the Medical Education building for the M.D. degree program and the Burnett Biomedical Sciences Building, a part of the UCF College of Medicine, which opened in 2010 and 2009 respectively. The university plans for the campus to be home to other colleges and schools in the health-related professions (e.g., nursing, dental, allied health, and public health) and additional research buildings and research institutes.

Within the Medical City, the Sanford-Burnham Medical Research Institute opened in 2009, the MD Anderson Cancer Center Orlando Cancer Research Institute moved into the Burnett Biomedical Sciences Building in 2009, the Nemours Children's Hospital is expected to open in 2012, and the Orlando Veterans Affairs Medical Center is expected to open in 2012. The University of Florida Research and Academic Center at Lake Nona that includes the Orlando campus of the UF College of Pharmacy is expected to open in 2012.

The proposed D.M.D. program will be an essential addition to the concentration of medically-related facilities and will contribute to the overall economic development in Central Florida. The D.M.D. program will bring dental care to the health sciences campus and provide more opportunities for employment growth and research. The UCF Health Sciences Campus at Lake Nona is a prime location for a new College of Dental Medicine because the synergies between the health and medically-related fields will increase the economic development of this large metro region in ways that would be not be possible elsewhere.

The UCF College of Medicine and health sciences campus, combined with a developing life sciences cluster, is expected to create an additional 30,000 jobs and \$7.60 billion in annual economic activity by 2017 (2008, *Arduin, Laffer and Moore Econometrics*). The addition of the dental college to the UCF Health Sciences Campus at Lake Nona will add to the economic impact and has two elements.

The first is the one-time initial economic impact of the construction and associated capital purchases, estimated at \$72.73 million. The impact is the result of direct, indirect, and induced effects of construction on the region's economy.

The second economic impact is the ongoing, yearly result of operating the dental college. This takes into account the direct, indirect and induced effects of student-related and operations-related expenditures to obtain the total annual impact. It is estimated that the annual economic impact of the dental college will be \$68.53 million (*Sean Snaith, Dental School Impact Study, April 2011*; see more detail in Appendix D). These estimates do not include research or clinical productivity by the students and faculty and this contribution could be considerable.

The UCF D.M.D. degree program will generate approximately 98 graduates per year. The rapid and constant growth in the state's need for health care workers demands attention, especially in serving the economically disadvantaged population. In the state of Florida, there are currently 49.4 dentists per 100,000 individuals, well below the national average of 60.4. In Florida, there are currently 224 dental care health professional shortage areas (HPSAs). Florida ranks third in the nation in HPSAs; only Texas and California have a higher number of shortage areas. A significant number of these shortage areas are found in

the surrounding communities in Central Florida where the proposed D.M.D. program will be located.

Because this new degree program and the associated facilities will be self-funded and will not require allocation of state funds, the return on investment for state funds is mathematically infinite. The immediate tangible benefits include:

- Increase in the number of professionals in Central Florida who are employed
 - 57 faculty members
 - 53 staff members
- New construction of a Dental Education building and the associated indirect and induced effects of \$72.73 million from constructing the building
- Increased jobs and sales in Central Florida related to purchase of furniture, fixtures, laboratory and clinical supplies needed to run the dental program
- Increase in new housing starts and rentals for 396 students and the associated faculty and staff
- Annual economic impact associated with the direct, indirect and induced effects of student-related and college operations-related employment in the region estimated at \$68.53 million

Benefits of a Dental Program to the Community and the State

Many qualitative benefits accrue from having a dental college in Lake Nona. Citizens of the community will have improved access to dental health care. The addition of the dental program will allow the D.M.D. program to provide more access to dental health care for the entire population, and particularly for the aging, rural and low income populations who are underserved. The proposed dental college will include a 200-chair Primary Dental Care Clinic where students will develop their skills under the supervision of the faculty. This clinic will be able to provide very affordable dental care and procedures to patients who would otherwise not have access to such care. The dental researchers will collaborate with others at UCF, increasing the opportunities for additional grant support and research funding that will enhance the economy of Central Florida.

In addition to addressing the growing health care concerns in the region documented in Section II, a UCF dental degree program creates opportunities for the school and the community. Community support for the dental degree program at UCF is documented through letters of support, and all letters are located in Appendix E.

Several other factors contribute to the increase in economic activity:

- Dentists who serve on the faculty of dental schools and the staff of affiliated dental clinics and hospitals are considered to be among the nation's best, and they attract patients to the area for their dental care.
- Health care-related companies prefer to locate near major health education and research programs.

Although a dental degree program at UCF will require a number of years to mature, the establishment of a new dental school in the Orlando community will ultimately pay dividends for the region and the state in the short term and in the future.

Market Rate Tuition

The UCF D.M.D. degree program is based on a market rate tuition funding model. This approach enables UCF to create a self-sustaining dental education program that will not require state appropriations. The program will attract a local, regional, and national

applicant pool that has already demonstrated the interest and ability to pay market rate tuition. Note that the proposal specifically anticipates a tuition level of \$55,675 per year for class starting in 2014. Using the tuition escalation factor of 3 percent that is used in the proposal, this starting tuition is equivalent to a first-year tuition of \$48,025 in 2009. According to the American Dental Association *2009-2010 Survey of Dental Education*, 1,690 or 33 percent of 5,089 first-year dental students enrolled in fall 2009 nationally were paying tuition at or above the UCF College of Dental Medicine's 2009 rate of \$48,025. Moreover, in Florida, 49 percent of students paid more than UCF's proposed market rate tuition for the D.M.D. degree program.

Using a market rate approach in the new economic climate will build a dental education program that is self-sustaining, meets the needs of the applicant pool, takes advantage of the growing research and clinical education in Lake Nona, and serves the community.

The following table summarizes the timeline to seek tuition approval from the Florida Board of Governors.

Task/Milestone	Anticipated Date
Board of Governors approval of the UCF <i>Request to Offer a Doctor of Dental Medicine Degree</i> and associated budget	November 2011
UCF Board of Trustees Facilities and Finance Committee approval of market-rate tuition	January 2013
UCF Board of Trustees approval of market-rate tuition and associated updates to university regulations	March 2013
Submission of materials for approval by Florida Board of Governors	April 2013
Approval of market-rate tuition by Florida Board of Governors	June 2013
Publication of market-rate tuition in UCF regulations, college website, and other materials	July 2013

Appendix D

Economic Impact

The economic impact figures were generated using IMPLAN by Dr. Sean Snaith, director of the UCF Institute for Economic Competitiveness. IMPLAN is an economic input-output model developed by the USDA/Forest Services of the US Department of Agriculture in 1992, and it is used extensively for economic impact assessment. The following article provides a description of IMPLAN

“A comparison of the multipliers of IMPLAN, REMI, and RIMS II: Benchmarking ready-made models for comparison,” Dan S. Rickman , R. Keith Schwer, *The Annals of Regional Science*, © Springer-Veylag 1995 Ann Reg Sci (1995) 29:363-374

The brief description below is an excerpt from the article.

IMPLAN model

IMPLAN is an input-output model that was developed by the Forest Service of the U.S. Department of Agriculture (U.S. Forest Service 1992). For this study, the 1990 IMPLAN version is used. Each county is modeled as a single region without economic linkages to the other counties. The greatest level of disaggregation of the model is 528 sectors; but, the industries that do not exist in the region are automatically eliminated during user preparation of the model. In addition, the user can aggregate the industries of the IMPLAN model as desired. IMPLAN uses industry-based technology to derive its input-output coefficients. Finally, IMPLAN is a static model. Thus, it cannot trace the time path of economic impacts or be readily used for forecasting.

IMPLAN is nonsurvey based, using national technical coefficients derived from the 1982 U.S. input-output accounts (U.S. Department of Commerce, 1991). Its structure typifies that of input-output models found in the regional science literature. IMPLAN assumes a uniform national production technology and uses the regional purchase coefficient approach to regionalize the technical coefficients. For the goods producing sectors, IMPLAN econometrically estimates the RPCs. To calculate the RPCs for the service sectors, IMPLAN uses the interstate trade flow matrices of the uncorrected MRIO model (U.S. Department of Health and Human Services, 1983) and estimated regional demand. Also, calculated supply-demand pool ratios (see Richardson 1972, p. 123) provide upper bounds for all RPCs. State value added-to-earnings ratios are used to estimate industry supply at the county level, while demand then is estimated with the input-output table.

IMPLAN generates two types of multipliers for employment, output, value added, personal income, and total income: Type I multipliers and what IMPLAN refers to as Type III multipliers. The difference between IMPLAN's Type I and Type III multipliers is an induced consumption effect. Population responds proportionately to changes in employment; and, the changes in population in turn are used to calculate changes in consumer spending. Their Type III multiplier differs from the standard Type II multiplier in that the consumption function is nonlinear; that is, the marginal propensity to consume is not constant, decreasing as income in the region rises. As such, this specification results in a multiplier that is conceptually akin to Miernyk's Type III multiplier (Miernyk et al. 1967).

Output Tables from the Model

The tables below provide the output from the IMPLAN model for the College of Dental

Medicine. The annual economic impact of operations takes into account the direct, indirect and induced effects of student-related and operations-related expenditures to obtain the total annual impact. The one-time impact of construction and capital is the result of direct, indirect, and induced effects of construction on the region's economy. Labor income is the cost of hiring needed people to either build the dental school or operate it. Value added is the rise in costs as construction or operations are underway. Output is the gross domestic benefit (GDP) of the construction or operations. The economic impact quoted in the document is shown as a shaded cell (Total Effect row and Output column) and is equivalent to a GDP for the dental school.

Students

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	68	\$1,289,124	\$5,840,387	\$7,682,246
Indirect Effect	15	\$577,953	\$1,236,506	\$2,009,564
Induced Effect	15	\$590,206	\$1,066,911	\$1,732,192
Total Effect	98	\$2,457,283	\$8,143,804	\$11,424,002

Operations

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	357	\$14,141,772	\$14,604,002	\$28,642,594
Indirect Effect	85	\$3,388,707	\$7,548,748	\$12,357,155
Induced Effect	140	\$5,490,556	\$9,920,780	\$16,111,154
Total Effect	581	\$23,021,034	\$32,073,529	\$57,110,902

Total Operational (annual impact) = Students + Operations

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	425	\$15,430,896	\$20,444,389	\$36,324,840
Indirect Effect	100	\$3,966,660	\$8,785,254	\$14,366,719
Induced Effect	155	\$6,080,762	\$10,987,691	\$17,843,346
Total Effect	679	\$25,478,317	\$40,217,333	\$68,534,904

Construction and Capital

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	319	\$15,130,363	\$19,098,647	\$40,536,325
Indirect Effect	98	\$4,995,716	\$7,683,865	\$13,554,182
Induced Effect	162	\$6,350,196	\$11,478,163	\$18,636,440
Total Effect	579	\$26,476,275	\$38,260,675	\$72,726,946

Appendix E Letters of Support

Financial Support			
E1	Pledge Form from Donor	Anonymous	
Clinical and Research Partnerships			
E2.1	Brevard County Health Department	Heidar Heshmati, M.D., P.P.H., Ph.D.	Director
E2.2	Brevard Health Alliance	Lisa Gurri	CEO
E2.3	Central Florida Family Health Center	Leslie Smith, D.O.	Chief Executive Officer/Chief Medical Officer
E2.4	Central Florida Medical Affiliates	Robert C. Alexander	Executive Director
E2.5	Central Florida Oral & Maxillofacial Surgery	Wilbur M. Davis, D.D.S.	
E2.6	Community Vision	Donna Sines	Executive Director
E2.7	Dental Care Access Foundation, Inc.	Julie Kestler	Executive Director
E2.8	Health Care Center for the Homeless, Inc.	Bakari F. Burns, MPH, MBA	Chief Executive Officer
E2.9	Health Council of East Central Florida	Kenneth Peach	Executive Director
E2.10	Nemours Children's Hospital	Roger Oxendale, MBA	Chief Executive Officer
E2.11	Orange County Health Department	Kevin Sherin, M.D. and Maria D. Demas, D.D.S.	Director Executive Dental Director
E2.12	Orlando Health	Sherrie Sitarik	President/ CEO
E2.13	Primary Care Access Network	Margaret Brennan	PCAN Administrator
E2.14	Sanford Burnham Medical Research Institute	Daniel Kelly, M.D.	Scientific Director
E2.15	Seminole County Health Department	Michael J. Napier, M.S.	Administrator
E2.16	Shepherd's Hope	Cathy Benson	President
E2.17	Space Coast Foundation	Johnette Gindling	Executive Director
E2.18	VA Medical Center	Timothy Liezert	Medical Director
Economic Development			
E3.1	C.T. HSU & Associates, P.A.	C.T. Hsu, P.A.	President
E3.2	Central Florida Partnership	Jacob V. Stuart	President
E3.3	City of Orlando Major	Buddy Dyer	Mayor
E3.4	Economic Development Commission	Rick Weddle	President & CEO
E3.5	G&T Conveyor Company, Inc. , and Board member for the Central Florida Partnership	Paul W. Shaffer	Chief Financial Officer
E3.6	Hyatt Regency Orlando International Airport	Patricia J. Engfer	General Manager
E3.7	Orange County Mayor	Teresa Jacobs	Mayor
E3.8	Seminole County Resolution	Brenda Carey	Chairman, Board of County Commissioners
E3.9	Tavistock Group	Rasesh Thakkar	Senior Managing Director
E3.10	Visit Orlando	Gary Sain	President & CEO

Appendix E1



University of Central Florida
Foundation, Inc.

Letter of Intent

Please send this form to:

Development Officer
UCF Foundation, Inc.
Office of Development
12424 Research Parkway,
Suite 250
Orlando, FL 32826
(407) 882-1220
<http://foundation.ucf.edu>

Donor Name: _____

Donor Address: _____

Telephone Number: _____

E-mail Address: _____

Individual
Joint with spouse
Corporate

For corporate donations, please list contact person and contact's telephone number: _____

Gifts of Cash or Marketable Assets

The total gift commitment is \$ 10,000,000

The amount enclosed with this letter of intent is \$ _____

The gift is designated to fund the:

Area of greatest need

Golden Knights Club

College/Area: COLLEGE OF MEDICINE

Program/Project Name: RENAL SCIENCE

Please remind me as follows:

Annual payments of \$ _____ beginning _____

Quarterly payments of \$ _____ beginning _____

Monthly payments of \$ _____ beginning _____

Other payment schedule: _____

Do not bill

Charge my credit card every (circle one): month / quarter / year beginning _____

Name as it appears on credit card: _____

American Express

MasterCard

VISA

Credit card number: _____

Expiration date: _____ Verification code: _____

I work for or our corporation is affiliated with a matching gift company.

Company Name: _____

I will be responsible for contacting the corporate office for the necessary paperwork.

All gifts to UCF are
tax-deductible to the
extent allowed by law.
Please make a check
payable to:

UCF Foundation, Inc.

Special Terms and Recognition Please note any restrictions for your gift here:

For recognition purposes, please list name as: _____

Thank You

for your support of
the University of
Central Florida.

Donor Signature _____

Date 4-11-2011

INFORMATION COMPLETED BY DEVELOPMENT OFFICER

Raiser's Edge ID: _____ Project #: _____ Development Officer: _____

Pledge

Processing: Development _____ Log # _____ Date _____ Advancement Services _____



July 13, 2011

Deborah C. German, M.D.
Vice President of Medical Affairs
University of Central Florida
6850 Lake Nona Blvd., Suite 313
Orlando, FL 32827

On behalf of Brevard County Health Department, I would like to express my support for the establishment of a dental school at University of Central Florida in the Medical City at Lake Nona.

- A dental school is an important element of the growing medical city in Lake Nona
- A dental school will help grow the economy in the region
 - Jobs
 - Construction
 - Research
- A dental program will enrich the education of students in the other health professions and improve healthcare
- If a dental school is approved, it is critical that the program be conducted in the context of a major research university like University of Central Florida
- The education and research dimension in the college will help bring the latest advance in dental practice and oral health care to the community
- The College of Dental Medicine with its 200-chair teaching clinic will help to provide needed dental care to the underserved in the region
- The service learning requirement of the educational program will require the faculty and students to help the underserved throughout Central Florida

We would welcome the opportunity to be part of the College of Dental Medicine.

Sincerely,

A handwritten signature in black ink, appearing to read "Heidar Heshmati MD".

Heidar Heshmati, M.D., M.P.H., Ph.D.
Director
Brevard County Health Department

Brevard County Health Department
Administrative Headquarters
2575 N. Courtenay Parkway • Merritt Island, Florida 32953-4147
<http://www.brevardchd.com>



BrevardHEALTHAlliance
INCORPORATED

Deborah C. German, MD
Vice President of Medical Affairs
University of Central Florida
6850 Lake Nona Blvd.
Suite 313
Orlando, FL 32827

Dear Dr. German,

The Brevard Health Alliance (BHA) is the only organization in Brevard County providing access to a comprehensive medical home for those that are poor and uninsured. In our short 6 years of operation, we have registered 60,000 individuals, over 60% without health care coverage. BHA is funded with dollars from HRSA, with specific funding for individuals experiencing homelessness and residing in public housing. We also enjoy a strong partnership with the areas hospital systems, Health First, Wuesthoff and Parrish Medical who support us with in-kind lab and diagnostic testing and cash assistance. This support is a tribute to our success in establishing a program that facilitates access for those patients that would otherwise go to area Emergency Departments for ambulatory care.

We will open our first dental clinic in August of 2011 and this will be the first and only program for emergency dental for adults with out resources. We believe this will quickly become overwhelmed due to the huge demand for services. Most individuals in our county use the areas for emergency dental care, which is ineffective.

BHA and our BOD wholeheartedly support the expansion of the UCF Medical Campus to open a Dental Health Program. Florida scores at the bottom of the nation (49th) in childrens health, dental being a huge gap in service and we know in Brevard County we will never meet the growing demands for medical or dental for children and/or adults. With the addition of a dental program, we see a solid collaboration to expand existing resources with its 200-chair teaching clinic and student placements in our community.

We welcome the opportunity to work together with the UCF Dental School, to make our region a healthier place to live and work, through collaborative partnerships such as this. The addition of this State-of-The-Art Teaching College for Dental Students will significantly enhance access for our patients, adding critical dental professional to the area.

Sincerely,

Lisa Gurri
CEO-The Brevard Health Alliance, Inc.

BHA

One-Stop Health Solution

3661 S. BABCOCK STREET — MELBOURNE, FLORIDA 32901
321-722-5910 — FAX: 321-733-2073 — WWW.BREVARDHEALTHALLIANCE.ORG

Appendix E2



July 19, 2011

Deborah C. German, MD
Vice President of Medical Affairs
University of Central Florida
6850 Lake Nona Blvd.
Suite 313
Orlando, FL 32827

Dear Dr. German,

The Central Florida Family Health Center, Inc. gladly supports University of Central Florida in seeking approval from the Board of Governors to open a dental school in the Medical City at Lake Nona.

As a Federally Qualified Health Center, Central Florida Family Health Center attempts to address the Medically Underserved Areas in regards to dental services in the Central Florida area. The demands for dental services are great and continue to grow. As a safety-net provider we realize that oral health is critical to physical health and the synergies in education, research and patient care that can occur with the Medical School are important in developing best practices and in educating future physicians and dentists.

The addition of a new dental program will not only be beneficial to the citizens in our area in regards to creating more access to dental care, but will also contribute to the economic analysis by creating 100 local jobs and a financial contribution of \$73 million to the local economy.

Central Florida Family Health Center has a long history of supporting community organizations' targeted efforts to address the physical and oral health needs of populations throughout our service area particularly those most vulnerable. We eagerly look forward to the opportunity to work together with the UCF dental school along with other community partners in addressing the needs of our community by providing additional access to care.

Sincerely,

Leslie Smith, D.O.
Chief Executive Officer/Chief Medical Officer

Alafaya Office
11881-A E. Colonial Drive
Orlando, FL 32826
(407) 275-4048
(407) 737-2423 Fax

Hoffner Office
5449 S. Semoran Boulevard
Suite 14
Orlando, FL 32822
(407) 207-7756
(407) 207-7766 Fax

Sanford Office
2400 S.R. 415
Sanford, FL 32771
(407) 322-8645
(407) 324-7311 Fax
(407) 956-4675 Fax

Southside Office
6101 Lake Ellenor Drive
Suite 105
Orlando, FL 32809
(407) 956-4660

Underhill Office
5730 Lake Underhill Road
Orlando, FL 32807
(407) 956-4320
(407) 956-4337 Fax



July 19, 2011

Deborah C. German, MD
Vice President of Medical Affairs
University of Central Florida
6850 Lake Nona Blvd.
Suite 313
Orlando, FL 32837

Dear Dr. German:

On behalf of the Board of Directors of Central Florida Medical Affiliates, Inc, I would like to express our support for the establishment of a dental school at the University of Central Florida. We recognize that a dental school is an important element of the growing medical city in Lake Nona

The education and research dimension in the college will help bring the latest advances in dental practice and oral health care to the community with its 200-chair teaching clinic and will help to provide needed dental care to the underserved in the region.

CFMA represents nearly 1, 400 physicians that practice in Central Florida and we recognize the education and research dimension in the college will help bring the latest advance in dental practice and oral health care to the community.

We enthusiastically support your efforts.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert C. Alexander", is written over a faint, larger, stylized version of the same signature.

Robert C. Alexander
Executive Director

Phone (407) 996-3221 • Fax (407) 996-2867
8831 Via Bella Notte • Orlando, FL 32836

Appendix E2

*FELLOWS
AMERICAN ASSOCIATION OF
ORAL AND MAXILLOFACIAL SURGEONS

WILBUR M. DAVIS, JR., D.D.S.*
JUDRE U. BUCHS, D.M.D.*
MICHAEL J. LANGAN, D.M.D.*
DANIEL J. CROFTON, D.D.S., M.D.*
SCOTT A. WENK, D.D.S., M.D.*
RAMON L. RUIZ, D.M.D., M.D.*

BRIAN D. FUSELIER, D.D.S.
BARRY LOUGHNER, D.D.S., M.S., Ph.D.



*DIPLOMATES
AMERICAN BOARD OF
ORAL AND MAXILLOFACIAL SURGEONS

WILBUR McL. DAVIS, SR., D.D.S.
1905-1982

CENTER FOR CORRECTIVE JAW SURGE
CENTER FOR DENTAL IMPLANTOLOGY
CENTER FOR TMJ DISORDERS

CENTER FOR FACIAL PAIN MANAGEMENT

May 31, 2011

Deborah C. German, MD
Vice President for Medical Affairs and Dean
UCF College of Medicine
P.O. Box 160116
Orlando, FL 32816

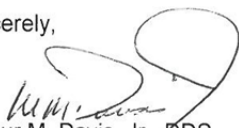
Dear Dr. German:

Thank you very much for your telephone conversation on May 27, 2011 regarding the possible formation of a new Dental School at the University of Central Florida.

I view the formation of a Dental School in our area from several different directions and feel that there are probably a fair number of significant challenges to be faced as well as hopefully some significant rewards to be gained. As I mentioned to you, if we do have a new Dental School then our practice, Central Florida Oral and Maxillofacial Surgery, and our doctors will be most interested in participating in both the formation and progress of the school. We have a full scope oral and maxillofacial surgery practice and a lot of experience in all areas of this field.

I would be honored to assist you in any way possible and will look forward to hearing from you in the future.

Sincerely,


Wilbur M. Davis, Jr., DDS
WMD/pge
Enclosures: Brochures
CV

GENERAL ORAL SURGERY
MAXILLOFACIAL TRAUMA
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CFOMS01

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265 HATTERAS AVENUE • CLERMONT, FL 34711 • 352/242-5331 • FAX 352/242-0450
1095 TOWN CENTER DRIVE • ORANGE CITY, FL 32763 • 386/775-6966 • FAX 386/775-9343
www.cforalsurgery.com

PREPROSTHETIC SURGERY
IMPLANTOLOGY
TMJ SURGERY



July 29, 2011

On behalf of Community Vision, I would like to express my support for the establishment of a dental school at UCF. Medical City is in the backyard of St. Cloud and Greater Osceola County.

Poverty is a big issue in our community. We have one of the highest foreclosure rates in the state and highest percentage of uninsured in the region (32%). Additionally, recent outreach efforts by Community Vision surveying over 2,000 residents from all walks of life demonstrated very troubling statistics. Of those earning under \$30,000 a year, 68% had no health insurance. From this one can deduce that even a higher percentage lacks dental insurance.

The median income for a household in the county was \$38,214, and the median income for a family was \$42,061. Males had a median income of \$29,034 versus \$21,746 for females. The per capita income for the county was \$17,022. Prior to the recession 11.50% of the population was below the poverty line including 14.70% of those under age 18. Our free health clinics report horror stories of people purchasing home repair products, like caulk, and insert it in cavities in an effort to reduce intense toothache pain.

A key Osceola county economic driver is construction so we would benefit from the new jobs so we would welcome the new jobs that building a dental school would contribute to our economy but more than that we hope to enjoy a partnership as beneficial as the collaboration with the medical school.

UCF interns recently received a national award for their volunteer involvement; serving the uninsured at the St. Thomas Aquinas clinic in St. Cloud. Additionally, students will be working with Alzheimer patients at our Council on Aging. The service learning requirement of the educational program will require the faculty and students to help the underserved throughout Central Florida. If current outreach is an indication of what we might expect from a dental school I am more than excited about the partnership potential. I welcome the opportunity to work with the College of Dental Medicine. Please do not hesitate to call me for further information.

Regards,

Donna Sines, Executive Director

704 Generation Point, #101 • Kissimmee, Florida 34744
Phone: 407-933-0870 • Fax: 407-933-0942 • Email: info@communityvision.org • www.communityvision.org

Appendix E2



800 N. Mills Avenue, Orlando, Florida 32803
Office (407) 898-1525 • Fax (407) 895-9712

July 26, 2011

Deborah C. German, MD
Vice President of Medical Affairs
University of Central Florida
6850 Lake Nona Blvd., Suite 313
Orlando, FL 32827

Dear Dr. German:

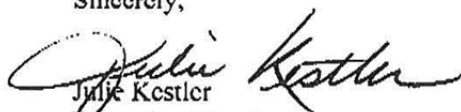
The Dental Care Access Foundation, Inc. and its volunteer members have partnered with the Dental Society of Greater Orlando to create a volunteer network of dentists and professionals to reach the growing population of uninsured in our area. A handful of members of the Dental Society came together to form a non-profit in 2002 that donates emergency dental care to low-income residents of Orange, Seminole and Osceola Counties. We collaborate on efforts to recruit volunteers who donate free or reduced-fee services to those who cannot afford or access care.

The Foundation is a member of Project: Dentists Care and the Primary Care Access Network. We also partner with Community Health Centers, County Health Departments and dental schools in our tri-county area by referring patients in need of dental care.

We are pleased to see and welcome the UCF Dental School to our community. We currently have over 200 volunteer dentists and specialists in our program. We also work with existing Assisting and Hygiene schools in the area to coordinate free or sliding-scale fee clinics and events. Students in these schools are invited to participate and volunteer in our community clinics and events.

We welcome the UCF Dental School to our community and to join our mission of creating access to care. Please contact me if you require further information on the partnership with the UCF Dental School and the Dental Care Access Foundation. I can be reached at (407) 898-1525.

Sincerely,


Julie Kestler
Executive Director



HEALTH CARE CENTER FOR THE HOMELESS, INC

July 15, 2011

Deborah C. German, M.D.
Vice President for Medical Affairs
Dean, College of Medicine
6850 Lake Nona Blvd
Orlando, FL 32827

Dear Dr. German:

On behalf of the Health Care Center for the Homeless (HCCH), it is my pleasure to provide you with a letter of support for the establishment of a new dental school in the Medical City at Lake Nona. HCCH is a federally qualified health center, and as such, our providers see first-hand the need for more dental health resources in our community. I believe that the establishment of the College of Dental Medicine will permit the University of Central Florida (UCF) to provide high quality dental services that will be of great benefit to residents who are currently underserved. HCCH would enjoy the opportunity to work collaboratively with UCF to develop innovative programs in patient care, education and research in this area.

The additional jobs and research opportunities that come with establishing the dental school will have a tremendous impact on the local economy, as well. I also believe that the UCF College of Dental Medicine program will enrich the education of students in the other health professions. The students will be able to assist the providers with patient care and will learn a great deal about the provision of high quality and affordable care for vulnerable populations. The education and research dimension in the College will help bring the latest advances in dental practice and oral healthcare to the community.

I believe that approving the establishment of the dental school will significantly improve dental care in the Orlando area and I wish you the very best on this endeavor and look forward to collaborating with you on this critically important program.

Sincerely,

Bakari F. Burns, MPH, MBA
Chief Executive Officer
Health Care Center for the Homeless, Inc.



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www.hcch.org





PROVIDING RESEARCH, EDUCATION AND PROGRAM SUPPORT TO IMPROVE HEALTHCARE DELIVERY AND OUTCOME

July 15, 2011

Deborah C. German, MD
Vice President of Medical Affairs
University of Central Florida
6850 Lake Nona Blvd., Suite 313
Orlando, FL 32827

Dear Dr. German:

The Health Council of East Central Florida supports the establishment of a dental school at the University of Central Florida.

Our research and program evaluation in Brevard, Orange, Osceola and Seminole counties has identified time and again the need for additional dental health services.

The *2009 Community Health Needs Assessment for Central Florida* revealed that only 46.1% of low-income adults and 44.7% of uninsured adults had visited a dentist or dental clinic in the past 12 months. The *Healthy People 2010* visit objective is a minimum of 56%.

The College of Dental Medicine, with its 200-chair teaching clinic, will help to provide needed dental care to the underserved in the region.

The service learning requirement of the educational program will require the faculty and students help the underserved throughout Central Florida

We would welcome the opportunity to work with the College of Dental Medicine as part of our *Health at Home* community health initiative.

Warmest Regards,

A handwritten signature in black ink, appearing to read "Kenneth Peach".

Kenneth Peach
Executive Director

Appendix E2



August 3, 2011

Deborah C. German, MD
Vice President of Medical Affairs
University of Central Florida
6850 Lake Nona Boulevard
Orlando, FL 32827

Dear Dr. German,

On behalf of Nemours Children's Hospital, I appreciate the opportunity to share my support for the establishment of a dental school at the University of Central Florida.

As a proud partner in Medical City, Nemours is committed to caring for the whole child and we are excited as we envision how future collaborations with UCF could play an important role in how we advance our mission. I firmly believe that the proposed addition of the UCF College of Dental Medicine would provide a significant complement to the already robust suite of health care services, educational programs and cutting-edge research already in place or currently under construction at the Lake Nona campus.

In caring for the whole child, we must consider not only what is important today but also what can help us to prepare for the future. In conjunction with the UCF School of Medicine, the dental program would provide a much needed focus and spotlight on how oral health affects the total health of children and families. We also recognize the potential for great synergies with the College of Dental Medicine as we begin to develop our pediatric dental health program and look to the eventual need for a dental residency program.

We also share an emphasis on the importance of making a difference in the lives of Central Floridians, regardless of socioeconomic status. While the School of Dental Medicine would require a service learning project to provide dental care for underserved members of our community during the course of their education, the positive impact of that component is far-reaching. By modeling a culture of service, the program has the potential to influence students to continue to give back long after they have left the classroom and moved into practice.

As a center for innovation and growth, it is critical that the Lake Nona campus be ready to meet the ever-evolving needs of our community. Nemours Children's Hospital welcomes the potential partnership opportunities with the UCF School of Dental Medicine as we continue to do whatever it takes to care for the children of Central Florida.

Sincerely,

A handwritten signature in blue ink, appearing to read "Roger A. Oxendale", with a long horizontal flourish extending to the right.

Roger Oxendale, MBA
Chief Executive Officer
Nemours Children's Hospital

July 15, 2011

Deborah C. German, MD
Vice President of Medical Affairs
University of Central Florida
6850 Lake Nona Blvd.
Suite 313
Orlando, FL 32827

Dear Dr. German,

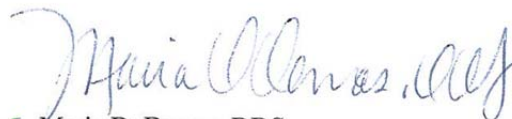
The Orange County Health Department [Orange CHD] gladly supports the University of Central Florida in your efforts to open a dental school in the Medical City at Lake Nona. We anticipate that a dental program will enrich the education of students in the other health professions and improve healthcare in the Central Florida area particularly in Orange County. The service learning requirement of the educational program will require the faculty and students to help the underserved throughout Central Florida. This is significant to increasing access to oral health care for many residents who cannot afford these services. According to the latest available data, 16.9% of Orange County residents who needed to see a dentist could not due to cost. Orange County also has a great need for Dentists as our rate for total dentists per 100,000 population at 53.6 is far below that of the State of Florida at 61.9. We understand that The College of Dental Medicine with its 200-chair teaching clinic will help to provide needed dental care to the underserved in the region.

A dental school at the Medical City would bring many additional benefits to this community. It is an important element of the growing medical city in Lake Nona and will help grow the local economy in terms of jobs, construction and research. If a dental school is approved, it is critical that the program be conducted in the context of a major research university like the University of Central Florida. The education and research dimension in the college will also help bring the latest advances in dental practice and oral health care to the community. Orange CHD has a long history of supporting community organizations' targeted efforts to address the health needs of populations throughout Orange County and we welcome the opportunity to work with the College of Dental Medicine.

Sincerely,



Kevin Sherin, M.D., M.P.H., M.B.A.
Director, Orange CHD



Maria D. Demas, DDS
Executive Dental Director, Orange CHD

6101 Lake Ellenor Drive
Orlando, FL 32809



(407) 858-1400 • Fax (407) 858-5514
www.orchd.com • www.orchd.mobi

Protecting Your Health...It's What We Do

Appendix E2



1414 Kuhl Ave.
Orlando, FL 32806
321.843.7000
orlandohealth.com

Office of the President

July 22, 2011

Dear Board of Governors:

On behalf of Orlando Health, I would like to express my support for the establishment of a dental school at the University of Central Florida.

As we look ahead to the future of Central Florida, the need for leading-edge dental care for our community is clear and urgent. A dental school will serve as an important component of the medical city in Lake Nona, helping to grow and enrich the Central Florida economy through the addition of jobs, infrastructure development, and medical and dental research.

While dental care is one of the most important components of overall healthcare, there are significant access issues among the underserved in our community. The service learning requirement of the educational program will require the faculty and students to help the underserved throughout Central Florida. The College of Dental Medicine with its 200-chair teaching clinic will help to provide needed dental services to the underserved in our region.

If a dental school is approved, it is critical that the program be conducted in the context of a major research university like the University of Central Florida. The education and research dimension in the college will help bring the latest advances in dental practice and oral healthcare to our community. In addition, a dental program will enrich the education of students in other health professions, further enhancing the healthcare of all members of our community.

Dental care is a crucial part of wellness and health, and it is important that our community provide the highest level of care for our community.

Sincerely,

A handwritten signature in purple ink that reads "Sherrie Sitarik".

Sherrie Sitarik
President/CEO
Orlando Health

Appendix E2



July 13, 2011

Deborah C. German, MD
Vice President of Medical Affairs
University of Central Florida
6850 Lake Nona Blvd.
Suite 313
Orlando, FL 32827

Dear Dr. German,

Please accept this letter of support on behalf of the Primary Care Access Network (PCAN) for the establishment of a dental school at UCF. As you may already be aware, PCAN is comprised of 22 public, private, faith-based and government agencies committed to improving the access, quality and coordination of health care services to the uninsured and underinsured populations of Orange County. Our mission is to “make access to care available for everyone in our community”. We have taken on this challenge by expanding healthcare services to 10 primary care and 1 specialty care clinics reaching over 100,000 uninsured since 1999.

PCAN is well aware of the ongoing plight faced by the dentally underserved population and has been providing dental services to this population through our federally qualified health centers as well as a volunteer dental program, the Dental Care Access Foundation (DCAF), which is also a member of PCAN. The College of Dental Medicine with its 200-chair teaching clinic will help to provide needed dental care to the underserved in the region.

PCAN supports the College of Dental Medicine as it aligns with PCAN’s mission regarding access to care to the underserved population. In addition, we recognize that it is an important element of the growing medical city in Lake Nona and will help grow the economy through jobs, construction and research.

If you have any questions or concerns, I can be reached through the contact information noted herein.

Sincerely,

A handwritten signature in blue ink that reads "Margaret Brennan". The signature is fluid and cursive, written in a professional style.

Margaret Brennan
PCAN Administrator
(407) 836-2649

July 22, 2011



Deborah C. German, M.D. Vice President of Medical Affairs
Dean, College of Medicine University of Central Florida 6850
Lake Nona Boulevard, Suite 313 Orlando, Florida 32827

Dear Dr. German,

I am writing this letter in regards to the initiative to establish a College of Dental Medicine in the emerging medical city in Orlando. As Scientific Director of the Sanford-Burnham Medical Research Institute (SBMRI) site in Orlando, on behalf of the Institute, I wish to lend my strongest support for this endeavor.

As you know, the Lake Nona medical city is one of the fastest growing medical care delivery, health services education, and biomedical research clusters in the nation. It has attracted high caliber research and clinical care partners including SBMRI, Nemours Children's Hospital, and a VA Medical Center. A centerpiece of these powerful new environs is the new University of Central Florida College of Medicine, which serves as an anchor for this broad health education and research initiative. The inclusion of a Dental School within the emerging medical city would complement and extend the broad array of clinical and education services. A dental program would enrich the education of students in other health care professions and enhance the broad array of health care delivery components. The critical mass of clinical care providers and research organizations in the medical city provides for an outstanding environment for the new Dental School, and will ensure patients. A College of Dental Medicine in this central Florida locale would provide dental care to the underserved in our region, of which there are many. A Dental School, juxtaposed to SBMRI and the Burnett School of Biomedical Sciences at UCF, could provide exciting new opportunities for breakthrough basic and clinical research programs related to dental medicine.

In summary, I wholeheartedly support the efforts to establish a College of Dental Medicine under the UCF umbrella. Given the extraordinary progress of the new College of Medicine, and the major commitment of UCF to establish a nationally recognized Health Sciences School, I believe that the proposed College of Dental Medicine is a perfect fit.

Daniel P. Kelly, M.D.
Professor and Scientific Director
Sanford-Burnham Medical Research Institute at Lake Nona
dkelly@sanfordburnham.org

(DPK/gd)

A handwritten signature in black ink that reads "Daniel P. Kelly". The signature is written in a cursive, flowing style.

6400 Sanger Road | Orlando, Florida 32827 | 407.745.2000 | www.sanfordburnham.org



Appendix E2

Rick Scott
Governor

H. Frank Farmer, Jr., MD, PhD, FACP
State Surgeon General

July 15, 2011

Dr. Deborah German
Vice President of Medical Affairs
University of Central Florida
6850 Lake Nona Blvd.
Suite 313
Orlando, FL 32827

Dear Dr. German,

On behalf of the Seminole County Health Department, I would like to express my support for the establishment of a dental school at UCF.

A dental school is an important element of the growing medical city in Lake Nona. It will help the growth of the economy in the region with jobs, construction as well as research. A dental program will enrich the education of students in other health professions and also to improve healthcare.

If a dental school is approved, it is critical that the program be conducted in the context of a major research university like UCF. The education and research dimension in the college will help bring the latest advances in dental practice and oral health care to the community. On a community level, the College of Dental Medicine with its 200-chair teaching clinic will help to provide needed dental care to the underserved in the region. The service learning requirements of the educational program should require the faculty and students to help the underserved population in Central Florida.

I welcome the opportunity to work with the College of Dental Medicine at UCF. Please contact me at (407) 665.3200 should you have further questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael J. Napier".

Michael J. Napier, M.S.
Administrator



Michael J. Napier, M.S. Administrator
400 West Airport Blvd, Sanford, Florida 32773



Appendix E2

4851 S. Apopka-Vineland Road
Orlando, Florida 32819
p 407.876.6699
f 407.909.0603
www.shepherdshope.org

July 27, 2011

Deborah C. German, MD
Vice President of Medical Affairs
University of Central Florida
6850 Lake Nona Blvd.
Suite 313
Orlando, FL 32827

Dear Dr. German:

On behalf of Shepherd's Hope, I wholeheartedly support the proposed dental school at UCF. The College of Dental Medicine with its 200-chair teaching clinic will help to provide critically needed dental care to the underserved in the region. While oral health is vital to anyone's ability to be a contributing member of our community, it is also important to note that this dental school will be an important addition to the growing medical city in Lake Nona, helping to support growth in our region.

We are so grateful for the current collaborative relationship between Shepherd's Hope and UCF-COM that has enhanced care for low-income, uninsured men, women and children residing in the Greater Orlando area. With the addition of this critical dental school we will see an even bigger impact on our local community and help meet a huge health care gap.

Going forward, I am looking forward to a collaborative partnership with the UCF Dental School which will help our local community to flourish.

Sincerely,

Cathy Benson
President

Caring people · Caring for people

July 29, 2011

Dr. Deborah German, Dean
University of Central Florida Medical School
6850 Lake Nona Blvd. Suite 313
Orlando, FL

Dear Dr. German:

It is my pleasure to write a letter in support of the University of Central Florida's Dental School proposed for the Academic Health Sciences Center at Lake Nona.

The Space Coast Health Foundation, a health legacy, grant-making foundation, is enthusiastic about our ongoing discussions to create a model for meeting the dental needs of the underserved and indigent residents of our area. We believe the foundation's desire to enhance dental services in Brevard County could be greatly enhanced by the collaboration with UCF as an academic and clinical partner. With our service area located only thirty minutes from the Lake Nona Campus, the UCF Dental School would provide access to state-of-the-art care and dental wellness for Brevard, as well as the rest of Central Florida.

We believe that your innovative approach will expand opportunities for wellness in our community, as well as provide a national model to increase dental health. Our Board fully supports the efforts of the University of Central Florida as they seek approval for a new dental school designed to become one of the top 10 in the nation.

We look forward to you receiving approval from the Board of Governors and to future discussions about collaborative efforts in Brevard County.

Sincerely,



Johnette Gindling
Executive Director

1116 Geiger Street
Rockledge, FL 32955

p} 321.637.2606
f} 321.690.6621

www.schfbrevard.org

Appendix E2



DEPARTMENT OF VETERANS AFFAIRS
VA Medical Center
5201 Raymond Street
Orlando, FL 32803

July 21, 2011

In reply refer to:
675/00

On behalf of the Orlando VA Medical Center, I would like to express my enthusiastic support for the establishment of a Dental School at University of Central Florida in Lake Nona.

Dental students will have the opportunity to serve America's heroes by providing world-class dental care to our Veterans, many of whom are underserved and look to the VA as their only source for dental care. Students will interact with the VA dental faculty and our Advanced Education General Dentistry residents. Collaboration between the Dental School and the Orlando VA Medical Center will offer a unique learning experience and the best possible preparation for real-world dentistry through our large, diverse, and comprehensive practice. Additionally, the proximity of VA's unique national resource, the Simulation Learning Education and Research Network (SimLEARN), to the medical school will offer unique collaborative opportunities to strengthen the research and education opportunities of Medical City.

In summary, we optimistically welcome the Dental School to Medical City as it will enhance our ability to provide the highest quality of dental care for Veterans. The VA's unique infrastructure will make UCF's already solid foundation even stronger. The Orlando VA Medical Center is fully committed to making the Dental School a national model of teaching and research excellence.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Liezert".

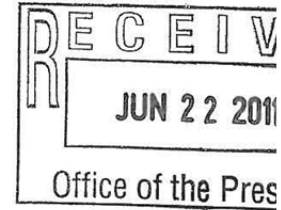
Timothy W. Liezert
Medical Center Director



C.T. HSU + ASSOCIATES, P.A.
ARCHITECTURE ■ PLANNING ■ INTERIOR DESIGN
ORLANDO

June 17, 2011

John C. Hitt, Ph.D.
President
University of Central Florida
P.O. Box 160002
Orlando, FL 32816



RE: Proposed UCF College of Dental Medicine at Medical City

Dear Dr. Hitt:

As a Central Florida Partnership Board Member who has the economic interests of the Central Florida region at heart, I am urging your support of the proposed UCF College of Dental Medicine at Medical City when you communicate with Chancellor Frank T. Brogan and the Florida Board of Governors.

The prospect of adding the proposed UCF Dental College makes sense because of the state's current inability to keep up with student applications for accredited dental programs in Florida. Adding a dental college adjacent to the UCF College of Medicine campus takes advantage of Central Florida's burgeoning health, science, and medical partnerships, which includes:

- The UCF Health Sciences Campus at Lake Nona (home of the College of Medicine)
- Sanford-Burnham Medical Research Institute
- Orlando VA Medical Center
- Nemours Children's Hospital
- M.D. Anderson Cancer Center Orlando Cancer Research Institute
- Tavistock Group specialized laboratory facilities
- The University of Florida Research and Academic Center

UCF's College of Medicine and health sciences infrastructure complements a dental school; and a dental school will bolster the already strong research partnerships that exist within Central Florida. The economic and research benefits are compelling and will be a boon for the region's businesses.

Thank you for your advocacy of the proposed UCF College of Dental Medicine at Medical City.

Sincerely,

C.T. HSU + ASSOCIATES, P.A.


C.T. Hsu, FAIA, LEED AP
President



CTHSU.COM
820 IRMA AVENUE ORLANDO, FL 32803 USA ■ 407 423-0098 FAX# 407 423-4793
LICENSE # AA-C 00 1322

18149

June 23, 2011

John C. Hitt, Ph.D., President
University of Central Florida
P. O. Box 160002
Orlando, FL 32816

Dear Dr. Hitt,

It is my pleasure to share with you that earlier this month the Board of Directors for the *Central Florida Partnership* unanimously endorsed a resolution in support of the proposed UCF College of Dental Medicine.

Since 2006, the phenomenal advancement being made to provide a state-of-the-art, collaborative environment for medical research and training at the Medical City at Lake Nona has seeded the potential for limitless innovation and excellence.

As a direct result of your leadership, the partnerships developed by the University of Central Florida have nurtured a vision for a comprehensive, world-class health and life science cluster in Central Florida. The cluster will include health-related professional schools within walking distance of each other and with other Medical City partners already on site: Sanford-Burnham Medical Research Institute, M.D. Anderson Cancer Center, Orlando Veterans Affairs Medical Center, Nemours Children's Hospital, and the University of Florida Research and Academic Center.

The Medical City not only provides a central core of collegial research, discovery and healthcare delivery, but also an immeasurable economic impact for our region and state at a time when so many communities across our nation are struggling to overcome recent economic challenges. The economic diversification that the Medical City brings to a region historically based in agriculture and hospitality/tourism, fully supports our growing high tech sector, an epicenter for modeling, simulation and training.

The proposed UCF College of Dental Medicine is one more piece of the puzzle that will boost our regional economy, and provide higher education opportunities and high-value, high-skilled, high-wage jobs for our residents, as well as expanded healthcare services for our visitors.

As early as 2007, the *Central Florida Partnership* identified the Medical City at Lake Nona as one of its Regional Priorities and pledged to "educate the region on the economic impact of these facilities and advocate Central Florida as a world leader in medical excellence."

On behalf of the *Central Florida Partnership* and its four "Lines of Business" – *Orlando, Inc.*, *Leadership Orlando*, *myregion.org* and *BusinessForce* – we wish you success in advancing the UCF College of Dental Medicine.

Sincerely,



Jacob V. Stuart
President



June 20, 2011

The Honorable Ava Parker
Chair, Florida Board of Governors
State University System
325 West Gaines Street Suite 1614
Tallahassee, FL 32399-0400

Dear Chair Parker:

On behalf of the City of Orlando, I am pleased to share with you and the Florida Board of Governors, the City's support for the proposed University of Central Florida College of Dental Medicine, to be located on the UCF Health Sciences Campus at Lake Nona, Orlando. This college, proposed to open in 2014, will expand access to dental education for students, dental care in the community and provide new partnerships for medical research.

Much of the success that our region and the state enjoy from the Medical City at Lake Nona—nearly \$2 billion in construction has been completed or is underway—is owed to the Florida Board of Governors' visionary support for the UCF College of Medicine. The dream of a comprehensive world-class health and life science-cluster would be one step closer to reality with the addition of the UCF College of Dental Medicine.

The UCF College of Dental Medicine's boost to our region's economy will be significant. Coupled with a substantial construction and capital budget, a minimum of 110 high-paying jobs and an annual graduation of roughly 100 new dentists, the College of Dental Medicine will provide a critical new plank in our efforts to build a prosperous and sustainable economy.

I request that you give your full consideration to this visionary project. Undoubtedly, the UCF College of Medicine will create a 21st century workforce to meet the future demand for dental care as well as enhance the Medical City's ability to serve as an economic hub for the Central Florida region and the entire State of Florida for many years to come.

Sincerely,

A handwritten signature in blue ink that reads "Buddy Dyer".

Buddy Dyer
Mayor

Appendix E3



SERVING ORANGE, SEMINOLE, LAKE AND OSCEOLA COUNTIES AND THE CITY OF ORLANDO

July 28, 2011



www.OrlandoEDC.com

The Honorable Ava Parker
Chair, Florida Board of Governors
State University System
325 West Gaines Street, Suite 1614
Tallahassee, FL 32399-0400

Dear Chair Parker:

On behalf of the Metro Orlando Economic Development Commission (EDC), I am writing to you in support of the University of Central Florida's proposed College of Dental Medicine.

Thanks to the leadership of the Board of Governors, Central Florida already has a flourishing Medical City with the University of Central Florida (UCF) College of Medicine, where the College of Dental Medicine would be co-located. Also within this master-planned campus are prestigious research institutes including the Sanford-Burnham Medical Research Institute and the M.D. Anderson-Orlando Cancer Research Institute. Set to open soon are the Nemours Children's Hospital, Orlando VA Medical Center and VA Medical Simulation Center of Excellence, and the University of Florida Research and Academic Center. By approving the UCF College of Dental Medicine, dental students would have an unparalleled opportunity for research and collaboration in Central Florida.

As the lead economic development organization for the Orlando, Florida, region, the presence of the UCF College of Dental Medicine would help our efforts to promote this region worldwide as a center for life sciences and to attract more companies in this realm.

I urge the Board of Governor's to support the University of Central Florida's proposed College of Medicine not only for Central Florida, but for the State of Florida in advancing our life sciences cluster.

Thank you for your consideration.

Regards,

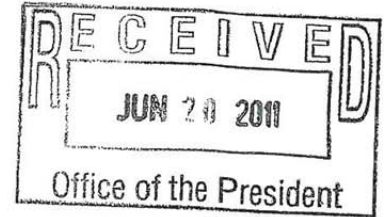
A handwritten signature in blue ink, appearing to read "Rick Weddle".

Rick L. Weddle
President & CEO



John C. Hitt, Ph.D.
President
University of Central Florida
P. O. Box 160002
Orlando, FL 32816

June 17, 2011



Re: Formation of Dental College at UCF

Dr Hitt:

As a local businessman and Board member for the Central Florida Partnership, I wish to express my support for the formation of a college of dentistry at UCF here in Orlando. With only 61 accredited dental colleges in the United States and only two in Florida, there would appear to be tremendous need to generate new professionals in this industry. As healthcare costs rise, businesses struggle to offer low cost benefits to their employees. The creation of more dentists should help improve not only the service available but reduce the cost of providing that service. Demand will create opportunities and I see no reason that Florida and Orlando in particular should not be on the forefront of job creation. In addition, the job creation associated with having such an institution here in Orlando will better our local/regional economy. UCF would be creating over 100 new faculty positions, attract more than 400 new students and pump approximately \$50M into the local construction market.

Finally, as Florida has the third highest number of shortage areas (for dental professionals) in the United States, this is a great opportunity for UCF to help the state as well as the region increase the number of Dental professionals.

I support UCF's bid for a dental college to compliment its going presence in the academic medical community. What is good for UCF is beneficial to Orlando, our region and Florida!

Sincerely,

Paul W Shaffer

Chief Financial Officer

G&T Conveyor Company, Inc.

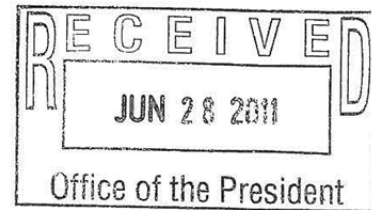
180811-5



Hyatt Regency Orlando International A
9300 Airport Boulevard
Orlando, FL 32827 USA

Telephone: 407.825.1234
Fax: 407.856.1672

June 23, 2011



John C. Hitt, Ph.D.
President
University of Central Florida
P.O. Box 160002
Orlando, FL 32816

Dear Dr. Hitt:

I would like to commend UCF for their efforts to develop a School of Dentistry to work in cooperation with UCF's School of Medicine and our Medical City.

I would also like to offer my support, in any way possible, as you work through the approval process.

After seeing the presentation on the merits of creating a School of Dentistry, I understand it will help to meet the needs of our community and our state. UCF has been a drawing force in our community in both education and economic development.

We appreciate your efforts and stand ready to support.

Sincerely,

Patricia J. Engfer
General Manager

PJE:akd



181530-1



TERESA JACOBS

201 SOUTH ROSALIND AVENUE, ORLANDO, FL 32801
407-836-7002 • Teresa.Jacobs@ocfl.net

June 22, 2011

The Honorable Ava Parker
Chair, Florida Board of Governors
State University System of Florida
325 West Gaines Street Suite 1614
Tallahassee, FL 32399-0400

Dear Chair Parker:

As Mayor of Orange County, please allow me to share with you and your board my support for the University of Central Florida's proposed College of Dental Medicine.

Over much of the last decade, Orange County has enjoyed a very productive partnership with UCF, especially in the area of economic development and diversification of our region's economic landscape. One of those successful partnerships involves the UCF College of Medicine and the Medical City at Lake Nona. A tremendous story in the making as the life sciences cluster continues to see rapid growth and investment here in Central Florida with the Sanford Burnham Medical Research Institute, M.D. Anderson Cancer Center Orlando's Cancer Research Institute, Nemours Children's Hospital, Orlando VA Medical Center and the University of Florida Research and Academic Center all following the UCF medical school's arrival.

Much like the Board of Governor's approval of the UCF College of Medicine, approval of the UCF College of Dental Medicine will continue the momentum and impact of the Medical City through dental education, shared medical research and promising economic growth. The self-sustaining model for the UCF School of Dentistry not only reflects the innovation of our community, but will provide both immediate and long term economic impacts: \$73 million in construction and capital purchases; at least 110 jobs with an average salary of \$100,000; an annual contribution to Central Florida's economy of nearly \$70 million, and the graduation of approximately 100 highly-trained dentists each year.

On behalf of Orange County, I respectfully ask for the Florida Board of Governor's support of the proposed UCF College of Dental Medicine. Its presence will contribute greatly to the continued strengthening of the UCF Health Sciences Campus at Lake Nona, and will also provide the promise of additional partnerships for medical research and care in our community.

Sincerely,

A handwritten signature in blue ink, appearing to read "Teresa Jacobs".

Teresa Jacobs

RESOLUTION No. 2011-R 144

RESOLUTION

THE FOLLOWING RESOLUTION WAS ADOPTED
AT THE REGULAR MEETING OF THE BOARD OF
COUNTY COMMISSIONERS OF SEMINOLE COUNTY,
FLORIDA ON THE 26TH DAY OF JULY, A.D., 2011

WHEREAS, the University of Central Florida has proposed the creation of a UCF College of Dental Medicine to be located in a 120,000 square foot facility at the campus of the UCF Health Sciences Campus; and

WHEREAS, the UCF College of Dental Medicine will open with an initial class of 60 students, and will eventually increase to approximately 100 students per class for the four-year Doctor of Dental Medicine (D.M.D.) program; and

WHEREAS, the UCF College of Dental Medicine will create the only dental school in Central Florida, and will do so through a self-sustaining model of market rate tuition and philanthropic gifts, with no tax dollars required for construction or operations; and

WHEREAS, through increased opportunities for cutting-edge research and collaboration with neighboring medical education, research and delivery institutions, the College of Dental Medicine will continue the successfully unfolding story of the Medical City and its growing reputation as an emerging life sciences and healthcare cluster; and


WHEREAS, much of the economic success that our state and region has enjoyed from the Medical City—nearly \$2 billion in construction and an anticipated 5,000 employees will be directly employed by the current anchors of the UCF College of Medicine, the Sanford Burnham Medical Research Institute, Nemours Children's Hospital, Veteran's Administration Hospital, MD Anderson Cancer Center, and the University of Florida Research and Academic Center— is due in large part to the Florida Board of Governor's leadership and support of the UCF College of Medicine; and

WHEREAS, the Seminole County Board of County Commissioners has enjoyed a longstanding partnership with UCF in the economic development of our county and region, as reflected in the Board's early financial and political support of the UCF College of Medicine.

NOW, THEREFORE, BE IT RESOLVED, that the Seminole County Board of Commissioners strongly supports the proposed University of Central Florida College of Dental Medicine, recognizing the important role the dental college will play in the region's healthcare and economic vitality and as such, encourages the Florida Board of Governors to look favorably upon the proposal in its deliberations.

ADOPTED this 26th day of July, A.D., 2011.

ATTEST:


Maryanne Morse, Clerk to the Board of
County Commissioners in and for the
County of Seminole, State of Florida


Brenda Carey, Chairman
Board of County Commissioners



Appendix E3



August 2, 2011

Deborah C. German, M.D.
Vice President of Medical Affairs
Dean, College of Medicine
University of Central Florida
6850 Lake Nona Blvd., Suite 313
Orlando, FL 32827

VIA EMAIL & US MAIL

Dear Dean German:

I am honored to express our enthusiastic endorsement of the planned University of Central Florida College of Dental Medicine. Tavistock Group has been UCF's partner for many years at Lake Nona Medical City, and this exciting project represents one more step on our shared journey toward changing the face of healthcare while redefining the economic and employment landscape of Central Florida.

We have believed for some time that the State of Florida would benefit enormously from at least one more dental school, and the case for establishing one within Lake Nona Medical City is compelling. As you fully understand, great biomedical clusters are built around four essential drivers: research, education, clinical care and commerce. A dental school, particularly one developed in close collaboration with a medical school, embraces the first three of these directly. And we are confident that the innovation ecosystem we are building at Lake Nona will accelerate the commercial development of innovative new products and services in the important field of oral health.

The Lake Nona Medical City cluster has attracted over \$2 billion in construction in a few short years, proving the power of collaboration among committed partners. We are confident that a new UCF College of Dental Medicine offers yet another powerful acceleration force that will benefit the residents of the state economically, and through collaboration with your many Lake Nona and Central Florida partners, ensure higher quality education and improved dental care in the state.

The UCF College of Dental Medicine will be constructed on land donated to the university by Tavistock Group, a gift we made for just this purpose: propelling clinical, educational and scientific advancement to redefine Florida for the new century. This undertaking confirms our confidence in UCF's ability to execute successfully on your vision to raise the bar on medical care of all kinds for the residents of the region and the state. I know that your commitment to

TAVISTOCK HOUSE • 9350 CONROY WINDERMERE ROAD • WINDERMERE, FLORIDA 34786 • PHONE & FAX (407) 909-9000 • TAVISTOCK.C

Deborah C. German, M.D.
August 2, 2011
Page 2

treat patients without the means to pay for quality dental care is an important part of your strategy and your dedication to community service for your faculty and students.

Dean German, you have our full support as you continue establishing this important new asset that will benefit the region and the state. Congratulations on your progress so far, and thank you and your team for all that you are doing to improve the quality of life and economic strength of our great state.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Rasesh Thakkar', with a long horizontal line extending to the right.

Rasesh Thakkar
Senior Managing Director

cc: Thaddeus Seymour, Jr.



Appendix E3

Gary C. Sain, President & CEO

VisitOrlando

August 2, 2011

Dr. John C. Hitt
President
University of Central Florida
P.O. Box 160002
Orlando, FL 32816-0002

Dear Dr. Hitt,

On behalf of Visit Orlando, it is and has been my pleasure to support the activities at the Lake Nona Medical City, particularly the growth of the UCF College of Medicine. In that regard, I can also attest to the importance of adding a College of Dental Medicine to the complex.

Orlando is already the nation's leader in hosting medical related meetings, conventions, and conferences. Everyone in the hospitality industry in Central Florida is involved in the goal to make the region the world's healthcare destination. A fully developed and health diverse Medical City is key to those aspirations. It is inconceivable to achieve that success without a College of Dental Medicine to provide education, public service, and research. UCF is uniquely positioned and qualified to add that vital element.

Incorporating every aspect of healthcare, health related research, and a full menu of education programs, the Medical City will achieve its full promise. The tourism and hospitality industries have vested interests in supporting UCF and the partnerships in the Medical City.

Thank you for your consideration.

Warm regards,

A handwritten signature in black ink, appearing to read "Gary C. Sain". The signature is fluid and cursive, with a long, sweeping line extending from the end of the name.

Gary C. Sain

6700 Forum Drive, Suite 100, Orlando, FL 32821-8017 • 407-363-5849 • Fax 407-370-5022
e-mail Gary.Sain@VisitOrlando.com • VisitOrlando.com



**SUPPLEMENTAL FLORIDA DENTIST NEEDS ANALYSIS
2010-2050**

Robert L. Armacost, D.Sc.
Special Advisor to the Dean
College of Medicine
University of Central Florida

July 2011

SUPPLEMENTAL FLORIDA DENTIST NEEDS ANALYSIS, 2010-2050

EXECUTIVE SUMMARY

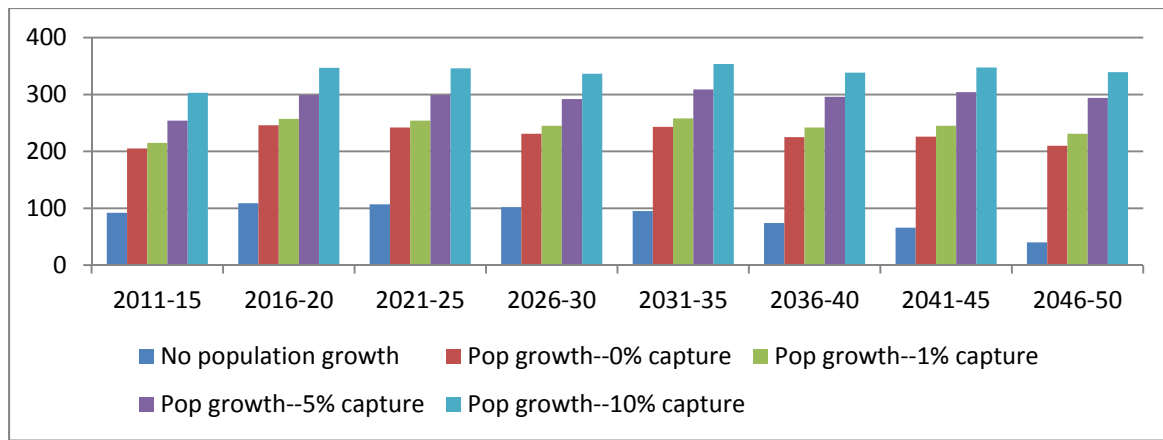
With the potential development of new dental schools in Florida and nationwide, it is valuable to examine the demand for dentists in the state of Florida and the potential for dental schools to meet that need. The *Report on the 2009-2010 Workforce Survey of Dentists* by the Florida Department of Health that included the results of an extensive survey of dentists provided much needed valuable data on current dental practice in Florida. The report conducted an initial examination of workforce needs that considered planned retirements from active dentistry. The *Workforce Report* compared the projections through 2050 of new dentists entering the profession with those intending to leave and concluded that the new dentists will more than offset the attrition associated with retirement. The initial analysis of dentist retention and attrition and the replacement of those dentists presented in the *Workforce Report* is a first step in looking at the broader question of balancing needs and service. However, the report did not consider any mortality effects in its workforce projections and noted that it did not consider population growth or any changes in service levels.

This analysis follows up on that initial *Workforce Report* analysis and extends the analysis to consider the important areas not addressed in the original analysis. The new results account for mortality in projecting workforce needs to meet identified total workforce levels. The analysis identifies five different workforce levels:

- No population growth and maintenance of current level of service
- Respond to population growth and maintenance of current level of service
- Respond to population growth and capture 1 percent of the population not currently served
- Respond to population growth and capture 5 percent of the population not currently served
- Respond to population growth and capture 10 percent of the population not currently served

The results of the analysis show the numbers of new dentists needed annually to meet these alternatives and are summarized in the following table and illustrated in the following figure.

New Annual Dentist Needs	2011-15	2016-20	2021-25	2026-30	2031-35	2036-40	2041-45	2046-50
No population growth	242	259	257	252	245	224	216	190
Pop growth--0% capture	355	396	392	381	393	375	376	360
Pop growth--1% capture	365	407	404	395	408	392	395	381
Pop growth--5% capture	404	449	449	442	459	446	454	444
Pop growth--10% capture	453	497	496	487	504	489	497	489



The University of Florida College of Dentistry currently contributes about 70 dentists and Nova Southeastern University College of Dental Medicine currently contributes about 80 dentists each year to Florida’s practicing dentists. Comparing this supply with the total needs in the above table leads to the following table of dentist needs that must be met from other dental schools.

New Dentists above UF and NOVA	2011-15	2016-20	2021-25	2026-30	2031-35	2036-40	2041-45	2046-50
No population growth	92	109	107	102	95	74	66	40
Pop growth--0% capture	205	246	242	231	243	225	226	210
Pop growth--1% capture	215	257	254	245	258	242	245	231
Pop growth--5% capture	254	299	299	292	309	296	304	294
Pop growth--10% capture	303	347	346	337	354	339	347	339

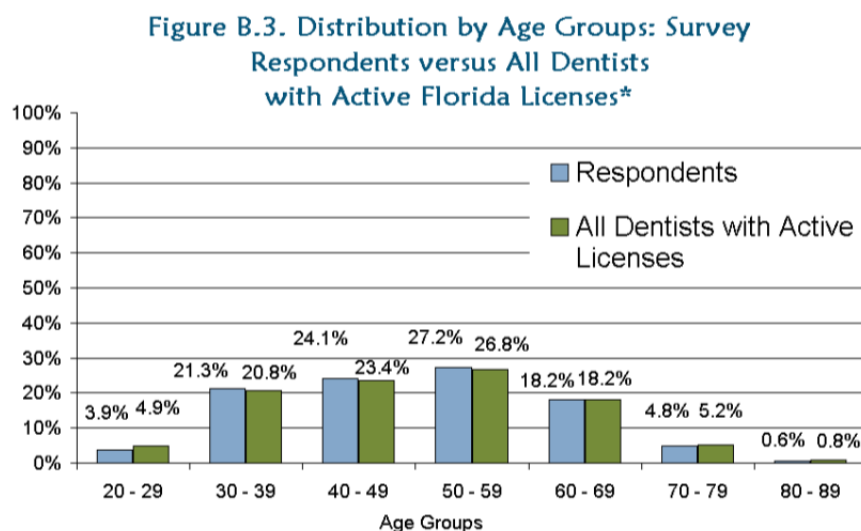
The *Workforce Report* estimated the availability an additional 307 dentists per year based on existing licensing experience (includes graduates from current Florida dental schools). If one considers keeping the current level of service but planning to meet the growing population, the current projection of dentist increase is insufficient to meet the need (e.g., 355 dentists needed in 2011-2015). If the state pursues initiatives to increase oral health and increase the percentage of the population that is seeing a dentist, the need increases further, depending on how aggressively oral health is pursued. If a moderate approach (capture 5 percent of those not currently served by a dentist) is pursued, the demand for new dentists ranges from 254 to 309 dentists more than currently produced by Florida dental schools.

Planning to meet expected population growth and reasonable initiatives to increase the percentage of the population that sees a dentist on a regular basis suggest that there is an increasing demand for dentists greater than previously realized. The data and analysis suggest that the need for upwards of 200 dentists per year is not met by existing Florida dental schools. New dental schools in Florida could help to meet that need and importantly would not be creating an oversupply of dentists.

INTRODUCTION

With the potential development of new dental schools in Florida and nationwide, it is valuable to examine the demand for dentists in the state of Florida and the potential for dental schools to meet that need. Recently, the Florida Department of Health completed the *Report on the 2009-2010 Workforce Survey of Dentists* (the *Workforce Report*) that was administered on a voluntary basis in conjunction with the biennial renewal of licenses. This survey provides much needed information on dental practice in the state as well as intentions of dentists with regard to their future practice. The survey data also highlights the variability of dental practices and their locations as well as identifies underserved populations.

There were 11,272 dentists who renewed their license by June 23, 2010, of whom 89 percent (10,311) responded to the survey, and of those respondents, 8,096 practice in Florida. Among the Florida practice respondents, 78.4 percent reported practicing full-time. The distribution of respondents and active license holders by age group is included in Figure B.3 in the report (included below).



*Survey respondents and all dentists with active licenses as of June 23, 2010

Source: Workforce Dental Survey, 2009-10

The data indicate that approximately 926 dentists plan to leave the profession in the next five years although more than two-thirds indicated they intended to maintain a limited license for volunteering. Using the intended leaving behavior for the different age groups, the *Workforce Report* compared the projections through 2050 of new dentists entering the profession with those intending to leave and concluded that the new dentists will more than offset the attrition associated with retirement.

The *Workforce Report* considers many dimensions of oral health care in Florida. It notes that the current level of practice results in about 1.3 patient encounters per year and notes that a significant number of citizens receive no oral health care. Appendix C in the report includes excerpts from various oral health care workforce initiatives and documents and details many of the goals for improving oral health care, including increasing provider and practitioner contact with potential patients. The report states that the “sufficiency of the dental workforce for meeting Florida’s oral health care needs can only be gauged within the dynamic of need and service.” (*Workforce Report*, p. 6) “The workforce survey of dentists, concentrating on supply-side characteristics of Florida dentistry, is limited by its own scope

as a resource for grasping the extent to which needs and service attain balance.” (*Workforce Report*, p. 6)

The initial analysis of dentist retention and attrition and the replacement of those dentists presented in the *Workforce Report* is a first step in looking at the broader question of balancing needs and service. There are several aspects of this balancing that bear further analysis that the report has not considered directly. On the supply side, the report has not included dentist mortality and makes the assumption that no dentists die, they only leave the profession voluntarily. By looking only at replacement of voluntarily attriting dentists, the report implicitly assumes no growth in demand for services. In particular, the report notes that it has not examined population growth and implies that is something that should be done. (*Workforce Report*, p. 56) In addition, there is no explicit treatment of handling growth in demand either in underserved or currently served populations. The report states that there is unused capacity with some dentists working less than full-time (see Figure 4.4 in the report), but there is no indication whether those dentists would be willing to work at a full-time level.

In order to provide additional insight regarding dentist projections, the current analysis accounts for three issues not addressed in the *Workforce Report*:

- Dentist mortality
- Increase in demand associated with population growth
- Increase in demand associated with increase in oral health care and level of service

DENTIST ATTRITION AND MORTALITY

Respondents to the survey indicated whether or not they intended to leave the profession within five years. The responses are shown in Figure 5.1 of the report. Based on those responses, approximately 6 percent of those in age group 50-59, 30 percent of those in age group 60-69, 44 percent of those in age group 70-79, and 60 percent of those in age group 80-89 indicated that they intend to leave the profession in the next five years, although two-thirds intend to maintain a limited license for volunteering. Using those retirement probability estimates, the report applied them for 10 year periods to project the attrition of the current workforce. Figure 5.4 (included below) shows the results.

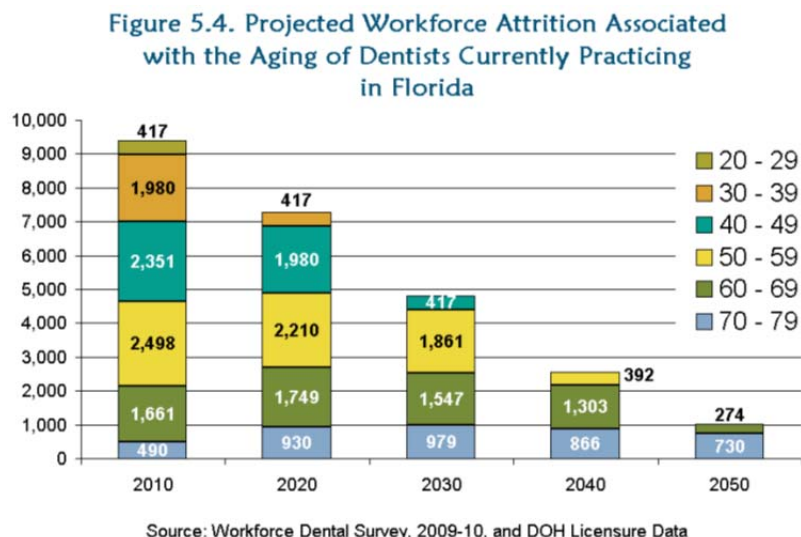


Figure 5.4 from the *Workforce Report* also shows that the number of dentists practicing in Florida in 2010, excluding those in the 80-89 age group is 9,397.

The exact attrition rates for each age group, using data extracted from Figure 5.1 in the *Workforce Report* is shown in Table 1.

Table 1. Responding dentists planning to leave profession within next five years

Age Group	No	Yes	% No	% Yes
20-29	275	1	99.64%	0.36%
30-39	1725	15	99.14%	0.86%
40-49	2012	23	98.87%	1.13%
50-59	1984	130	93.85%	6.15%
60-69	950	414	69.65%	30.35%
70-79	194	155	55.59%	44.41%
80-89	18	27	40.00%	60.00%
Total	7158	765	90.34%	9.66%

The above attrition rates represent conditional probabilities that can be applied only to living dentists. Life tables from the World Health Organization provide data on probability of dying in a five year period. Appendix A includes a Life Table extract for 2009 data for both sexes combined for the United States. Table 2 that follows extracts the probability of dying and the probability of surviving for the relevant age groups.

Table 2. Life table mortality rates (2009 USA both sexes)

Age Group	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89
Probability of dying during time period	0.0048	0.0054	0.0071	0.0107	0.0164	0.0244	0.0348	0.0509	0.0768	0.1151	0.1755	0.2711	0.4043
Probability of living beyond time period	0.9952	0.9946	0.9929	0.9893	0.9836	0.9756	0.9652	0.9491	0.9232	0.8849	0.8245	0.7289	0.5957

The *Workforce Report* applied the five year retirement probabilities to the 10-year age groups to obtain the results shown in Figure 5.4 of the report. Because the mortality data are available for the 5-year age groups, this analysis is conducted using the 5-year age groups starting at age 25. Under this structure, the conditional transition probabilities to the next age group using the data in Table 1 are shown in Table 3 for the 5-year age groups.

Table 3. Conditional transition probabilities to next age group

From Age Group	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89
Conditional probability of continuing to next age group	0.996	0.991	0.991	0.989	0.989	0.939	0.939	0.696	0.696	0.556	0.556	0.400	0.000
Conditional probability of leaving the profession	0.004	0.009	0.009	0.011	0.011	0.061	0.061	0.304	0.304	0.444	0.444	0.6	1

The data in Tables 2 and 3 are combined to create the unconditioned transition probability to the next age group with the results shown in Table 4.

Table 4. Transition probabilities to next age group

From Age Group	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89
Probability of continuing to next age group	0.992	0.986	0.984	0.978	0.973	0.916	0.906	0.661	0.643	0.492	0.458	0.292	0.
Probability of leaving the profession or dying	0.008	0.014	0.016	0.022	0.027	0.084	0.094	0.339	0.357	0.508	0.542	0.708	1.0

The probability estimates in Table 4 are used with the number of practicing dentists in Florida shown in Figure 5.4 and an estimate of the number of dentists in the 80-89 age group to compute the expected retention of dentists. The estimated retention/attrition through 2050 for dentists practicing in Florida in 2010 is shown in Table 5. The projections in Table 5 include dentists in the 80-94 and the 85-89 age groups and show higher levels in years after 2010 because of the retention of the 75-79 age group. Because the 80-89 age group is included in this analysis, a direct comparison cannot be made with the retention and attrition data in Figure 5.4 except to note that attrition is higher because mortality is now considered. For example, in 2050, Figure 5.4 from the *Workforce Report* shows 1004 of the original 9,397 dentists remaining, whereas Table 5 shows 808 of the original 9,446 dentists remaining.

Table 5. Retention and attrition of dentists practicing in Florida

Year	2010	2015	2020	2025	2030	2035	2040	2045	2050
Age Group									
25-29	417								
30-34	990	413							
35-39	990	976	408						
40-44	1176	975	961	401					
45-49	1176	1150	953	940	393				
50-54	1249	1143	1118	927	914	382			
55-59	1249	1144	1047	1024	849	837	350		
60-64	831	1131	1036	948	927	769	758	317	
65-69	831	549	748	685	627	613	508	501	209
70-74	245	534	353	481	440	403	394	327	322
75-79	245	121	263	174	237	217	198	194	161
80-84	34	112	55	120	80	108	99	91	89
85-89	34	10	33	16	35	23	32	29	26
Total	9466	8258	6974	5716	4501	3352	2339	1458	808

WORKFORCE PROJECTION MODEL – BASELINE

The initial composition of the dentist workforce and the retention transition probabilities (Table 4) provide the basis for a total workforce projection model. If the total size of the workforce or a particular distribution of the workforce among the age groups is specified, it is possible to examine recruitment options that can possibly achieve the desired results. One could recruit at any age group level. For this analysis, it is assumed that all new dentists are recruited in the 25-29 age group. As a starting point, we determine the number of new dentists that are required to maintain a workforce of a constant size, namely 9,466 active dentists practicing in Florida.

The number of new dentists is determined using an Excel model that minimizes the total number of new dentists over the planning horizon while ensuring that the 5-year planning period demand is met using the age group transition probabilities that account for retirements and mortality. It is assumed that all new dentists who are recruited will have the same behaviors regarding leaving the profession (i.e., the retention transition probabilities remain constant).

The model shows the number of new dentists who are required during the five year period. Assuming they are recruited annually, the annual number of new dentists is calculated. The *Workforce Report* shows that 88.2 percent of the survey respondents who graduated from the University of Florida College of Dentistry with a Florida license practice in Florida. Similarly, 80.2 percent of the respondents from the Nova Southeastern University College of Dental Medicine with a Florida license practice in Florida. Applying those percentages to the nominal graduating classes of 80 from UF and 100 from Nova Southeastern yield expected practicing dentists of 70 and 80, respectively. The demand for the additional dentists must be met from other sources, an out-of-state dental school or a foreign dental school or program. Figure 2.2 in the *Workforce Report* describes the distribution of dentists by dental school category and age group. The data are summarized by percentages in Table 6 below. It is clear that the reliance on graduates from foreign and out-of-state dental schools is decreasing with age groups. In fact, the two Florida dental schools have produced nearly 70 percent of the dentists in the 20-29 age group.

Table 6. Distribution of responding dentists practicing in Florida by education source

Age Group	Foreign	Nova Southeastern	University of Florida	Out of State
20-29	0.6%	26.6%	42.9%	29.9%
30-39	7.3%	17.0%	31.2%	44.5%
40-49	9.5%	4.2%	29.9%	56.4%
50-59	12.1%	1.1%	20.2%	66.5%
60-69	7.7%	0.2%	6.3%	85.9%
70-79	9.8%	0.3%	4.6%	85.3%
80-89	17.4%	0.0%	6.5%	76.1%
Total	9.1%	6.5%	23.4%	61.0%

To create baseline data set that considers both voluntary attrition and mortality, Table 7 shows the number of dentists needed in each five year period (highlighted in yellow and printed in boldface italic) in order to maintain a constant dentist population of 9,446 dentists practicing in Florida. Table 8 shows the annual recruiting requirement and identifies the number of dentists need from sources other than UF and Nova Southeastern.

Table 7. Recruiting requirements to maintain 2010 level of service

Year Age Group	2010	2015	2020	2025	2030	2035	2040	2045	2050
25-29	417	1208	1294	1286	1262	1223	1119	1080	949
30-34	990	413	1198	1283	1275	1252	1213	1109	1071
35-39	990	976	408	1181	1265	1257	1234	1196	1094
40-44	1176	975	961	401	1163	1245	1238	1215	1177
45-49	1176	1150	953	940	393	1137	1218	1210	1188
50-54	1249	1143	1118	927	914	382	1106	1185	1177
55-59	1249	1144	1047	1024	849	837	350	1013	1085
60-64	831	1131	1036	948	927	769	758	317	917
65-69	831	549	748	685	627	613	508	501	209
70-74	245	534	353	481	440	403	394	327	322
75-79	245	121	263	174	237	217	198	194	161
80-84	34	112	55	120	80	108	99	91	89
85-89	34	10	33	16	35	23	32	29	26
Total	9466	9466	9466	9466	9466	9466	9466	9466	9466
Desired	9466	9466	9466	9466	9466	9466	9466	9466	9466

Table 8. Annual recruiting requirements to maintain 2010 level of service

Baseline	2011-15	2016-20	2021-25	2026-30	2031-35	2036-40	2041-45	2046-50
Annual new dentists	242	259	257	252	245	224	216	190
UF	70	70	70	70	70	70	70	70
Nova Southeastern	80	80	80	80	80	80	80	80
Other new dentists	92	109	107	102	95	74	66	40

Note that in 2010 (*Workforce Report* Figure 2.2), 94 respondents to the workforce survey in age group 20-29 attended a foreign or out-of state dental school. The actual number is likely higher since only 70.6 percent of those dentists in that age group responded to the survey. It is not clear what the annual accretion rate is within that age group. The *Workforce Report* identified that from 2005 through 2009, the Florida Department of Health licensed an average of 377 new dentists annually. Based on responded behavior of 81 percent of licensed dentists practicing in the state, a total of 307 new dentists practicing in Florida would be more than sufficient to meet the new dentist requirement, even after accounting for mortality. The critical assumption here is maintaining the current level of service of approximately 1.3 visits per year. This baseline result does not account for any increase in the state population and associated service or in increasing the emphasis on oral health that would likely result in an increase in the number of visits annually. These effects are modeled in the following sections.

EFFECT OF FLORIDA POPULATION GROWTH ON NEED FOR DENTISTS

In referring to the projected growth in the availability of new dentists (at 307 per year based on previous licensing history), the *Workforce Report* questions “whether such growth is sufficient to keep pace with Florida’s population and dental care and indicates that is a separate question.” (*Workforce Report*, p. 56) The purpose of this section is to examine the potential impact of population growth on the need for dentists.

The changes in Florida’s population estimates and projections for the future have been seriously revised following the economic downturn. Table 9 includes population estimates through 2050 from a 2006 University of Florida study along with population estimates through 2030 from the Florida Demographic Estimating Conference that were made in 2009 and in 2010. The complete FDEC projections are included in Appendix B. To compare the changes in the forecasts at different points in time, note that the 2006 UF study estimated 19.655 million people in Florida in 2010, while the 2009 FDEC estimate was for 18.733 million. The actual official census count for 2010 that occurred one year later was 18.801 million, 0.4 percent higher than estimated by the 2009 FDEC study.

Table 9. Florida population projections and 5-year growth rates

Year	2006 UF Study		2009 FDEC		2010 FDEC	
	Population	5-year growth rate	Population	5-year growth rate	Population	5-year growth rate
2010	19,655,063		18,733,356		18,801,310*	
2015	21,280,260	8.27%	19,881,179	6.13%	19,974,415	6.24%
2020	22,894,140	7.58%	21,246,926	6.87%	21,326,799	6.77%
2025	24,449,152	6.79%	22,573,559	6.24%	22,641,337	6.16%
2030	25,898,476	5.93%	23,821,251	5.53%	23,877,889	5.46%
2035	27,551,159	6.38%			estimated rate	5.88%
2040	29,203,842	6.00%			estimated rate	5.53%
2045	30,856,525	5.66%			estimated rate	5.21%
2050	32,509,208	5.36%			estimated rate	4.93%

*2010 official census actual population

In order to estimate the increased demand for dentists associated with population growth, the estimated number of dentists in a given 5-year period is computed by applying the population rate of increase to the number of dentists in the previous period. For example, the 2010 demand for dentists is 9,446, sufficient to provide the current level of service. In 2015, providing the same level of service to the 2015 population will require $9,446 \times 1.0624 = 10,035$ dentists, a 6.24 percent increase. Because the FDEC data only goes to 2030, growth rates through 2050 for this study are estimated by applying the change in growth rates from the 2006 University of Florida study to the FDEC 2030 estimate of growth rate.

Applying the growth rates leads to the following estimates of the numbers of dentists needed to meet the larger population oral health needs. The estimates are shown in Table 10.

Table 10. Dentists needed to meet Florida population projections for 2010 level of service

Year	2010	2015	2020	2025	2030	2035	2040	2045	2050
Dentists needed	9,446	10,035	10,715	11,375	11,997	12,702	13,404	14,103	14,799

Inserting the number of dentists needed at each five-year point in the workforce projection model as the desired number of dentists yields the results shown in Tables 11 and 12. Table 11 shows the number of new dentists needed in each five year period (highlighted in yellow and printed in boldface italic) in order to meet the population growth in Florida. Table 12 shows the corresponding annual recruiting requirement and identifies the number of dentists needed from sources other than UF and Nova Southeastern.

Table 11. Recruiting requirements to maintain 2010 level of service for increased population

Year	2010	2015	2020	2025	2030	2035	2040	2045	2050
Age Group									
25-29	417	<i>1777</i>	<i>1978</i>	<i>1960</i>	<i>1907</i>	<i>1965</i>	<i>1875</i>	<i>1882</i>	<i>1802</i>
30-34	990	413	1763	1962	1943	1891	1949	1859	1866
35-39	990	976	408	1738	1934	1916	1865	1922	1833
40-44	1176	975	961	401	1711	1904	1886	1836	1892
45-49	1176	1150	953	940	393	1673	1862	1845	1795
50-54	1249	1143	1118	927	914	382	1627	1811	1794
55-59	1249	1144	1047	1024	849	837	350	1490	1658
60-64	831	1131	1036	948	927	769	758	317	1350
65-69	831	549	748	685	627	613	508	501	209
70-74	245	534	353	481	440	403	394	327	322
75-79	245	121	263	174	237	217	198	194	161
80-84	34	112	55	120	80	108	99	91	89
85-89	34	10	33	16	35	23	32	29	26
Total	9,466	10,035	10,715	11,375	11,997	12,702	13,404	14,103	14,799
Desired	9,446	10,035	10,715	11,375	11,997	12,702	13,404	14,103	14,799

Table 12. Annual recruiting requirements to maintain 2010 level of service for increased population

Population growth	2011-15	2016-20	2021-25	2026-30	2031-35	2036-40	2041-45	2046-50
Annual new dentists needed	355	396	392	381	393	375	376	360
UF	70	70	70	70	70	70	70	70
Nova Southeastern	80	80	80	80	80	80	80	80
Other new dentists needed	<i>205</i>	<i>246</i>	<i>242</i>	<i>231</i>	<i>243</i>	<i>225</i>	<i>226</i>	<i>210</i>

Comparing Tables 8 and 12 provides an instant observation with respect to the effects of the projected population growth. The obvious result is that the need for “other new dentists” (from schools other than UF and Nova Southeastern) has more than doubled. The total need for dentists now exceeds the *Workforce Report* estimate of 307 available each year.

EFFECT OF INCREASING THE LEVEL OF SERVICE ON NEED FOR DENTISTS

The *Workforce Report* estimates that the current non-specialized dental workforce produces up to 23.7 million patient encounters per year or roughly 1.3 dental visits annually per Floridian. This estimate was computed using the survey reported average of dentists seeing 67 patients per week (considers both full-time and part-time practitioners) for 48 weeks per year applied to the estimated 7,405 dentists involved in general or dental health practice. Using the actual estimate of 23,814,480 visits (*Workforce Report*, p. 46) and the 2010 population of 18,801,310, the estimated patient visits per year is 1.267. This estimate does not include any patient visits to specialists.

The *Workforce Report* notes that the 2008 *Florida Behavioral Risk Factor Surveillance System Report* stated that about two-thirds (67.3 percent) of Floridians visited a dentist or dental clinic in the previous year. If only two-thirds of the population is used in the per visit calculation, the average number of visits to a dentist or dental clinic rises to 1.88 *for those individuals who visit a dentist*. There are still 6.1 million Floridians who do not see a dentist.

The *Workforce Report* identifies numerous opportunities for improving the delivery of oral health care to those who are not being served by today's system. An increase in service level, either by increasing the number of dental visits by those currently seeing a dentist or delivering care to those currently not being served will require an increase in resources. To estimate the impact of increasing the service level, one could simply apply a percentage increase to the number of visits per year and then translate that increase to the number of dentists required. The challenge with that approach is that there is no basis for understanding what really has to happen in terms of patient visits for current and non-served populations in order to achieve the overall patient visit average.

In this analysis, we use a constructive approach to generate the estimated number of required dentists based on policy variables. For the current 67.3 percent of Floridians who are seeing a dentist, it is assumed that they will continue to see a dentist at an average of 1.88 visits per year. At each 5-year point, it is assumed that a specified percentage of Floridians who are not being served by a dentist will start seeing a dentist at the same visit rate (1.88) as the rest of the population. For example, in 2010, there are an estimated 6.1 million Floridians who do not see a dentist. If we set a 1 percent capture rate, we will start seeing an additional 61,000 patients. Assuming they continue seeing a dentist, that increases the overall percentage of Floridians who are receiving dental care and will also increase the overall average number of visits per patient. Using the new total annual patient visits and the annual average of 3,216 patient visits per dentist, the required number of dentists is computed directly. Because this analysis is based only on general and public health dentists (78.4 percent of estimated dentists), the number of total dentists can be computed assuming a constant general dentist and specialist mix.

The service level model uses population estimates for the projection years so it accommodates both population growth and changes in service levels. Results are shown in Tables 13 and 14 for implementing practices that capture 1 percent and 5 percent of the unserved population. In both cases, 67.3 percent of the current Florida population visits a dentist or dental clinic an average of 1.88 times a year. That rate applies for 2015 to the base population, but an additional 1 percent or 5 percent of the unserved population (65,316 and 326,582), respectively) now start seeing a dentist. Both the percentage of the population that sees a dentist and the average number of visits per year for the population as a whole increase. The net effect is that for a 1 percent capture policy (Table 13) that the percentage of

the population being seen by a dentist will increase from 67.3 percent to 69.5 percent by 2050 and the visits per year will increase from 1.267 to 1.314 during the same period. In comparison, a 5 percent capture policy (Table 14) will result in the percent seen by a dentist rising from 67.3 percent to 77.2 percent and the average visits increasing from 1.267 to 1.474 by 2050. Appendix C includes the table for a 10 percent capture policy where the percent seen by a dentist increases from 67.3 percent to 84.4 percent and the annual visits increase from 1.267 to 1.617 between 2010 and 2050. Importantly, the tables also include the number of dentists that are required to meet these service levels.

Table 13. Dentist requirements for increased population for 1% capture of unserved population

Year	Population	% of population that see dentist	Population that sees a dentist	Population that does not see a dentist	Patient encounters for current patients	% of non-dentist population that starts seeing a dentist	Population that starts seeing a dentist	Patient visits for new population	Total patient encounters	Total population seeing dentist	Visits per year for total population	General and public health dentists needed	All dentists needed
2010	18,801,310	67.3%	12,653,282	6,148,028	23,814,480	0			23,814,480		1.267	7,405	9,446
2015	19,974,415	67.3%	13,442,781	6,531,634	25,300,381	1%	65,316	122,931	25,423,312	13,508,098	1.273	7,905	10,084
2020	21,326,799	67.6%	14,422,674	6,904,125	27,144,618	1%	69,041	129,941	27,274,559	14,491,716	1.279	8,481	10,818
2025	22,641,337	68.0%	15,384,954	7,256,383	28,955,704	1%	72,564	136,571	29,092,275	15,457,518	1.285	9,046	11,539
2030	23,877,889	68.3%	16,301,727	7,576,162	30,681,143	1%	75,762	142,589	30,823,733	16,377,488	1.291	9,584	12,226
2035	25,281,736	68.6%	17,340,366	7,941,370	32,635,946	1%	79,414	149,463	32,785,408	17,419,780	1.297	10,194	13,004
2040	26,678,958	68.9%	18,382,502	8,296,455	34,597,328	1%	82,965	156,146	34,753,474	18,465,467	1.303	10,806	13,785
2045	28,069,958	69.2%	19,428,228	8,641,730	36,565,466	1%	86,417	162,644	36,728,111	19,514,645	1.308	11,420	14,568
2050	29,455,095	69.5%	20,477,613	8,977,482	38,540,493	1%	89,775	168,963	38,709,456	20,567,388	1.314	12,037	15,354

Table 14. Dentist requirements for increased population for 5% capture of unserved population

Year	Population	% of population that see dentist	Population that sees a dentist	Population that does not see a dentist	Patient encounters for current patients	% of non-dentist population that starts seeing a dentist	Population that starts seeing a dentist	Patient visits for new population	Total patient encounters	Total population seeing dentist	Visits per year for total population	General and public health dentists needed	All dentists needed
2010	18,801,310	67.3%	12,653,282	6,148,028	23,814,480	0			23,814,480		1.267	7,405	9,446
2015	19,974,415	67.3%	13,442,781	6,531,634	25,300,381	5%	326,582	614,653	25,915,034	13,769,363	1.297	8,058	10,279
2020	21,326,799	68.9%	14,701,629	6,625,170	27,669,632	5%	331,259	623,455	28,293,087	15,032,887	1.327	8,798	11,222
2025	22,641,337	70.5%	15,959,482	6,681,855	30,037,012	5%	334,093	628,789	30,665,801	16,293,575	1.354	9,535	12,164
2030	23,877,889	72.0%	17,183,445	6,694,444	32,340,607	5%	334,722	629,974	32,970,581	17,518,167	1.381	10,252	13,078
2035	25,281,736	73.4%	18,548,109	6,733,627	34,909,013	5%	336,681	633,661	35,542,674	18,884,791	1.406	11,052	14,098
2040	26,678,958	74.7%	19,928,478	6,750,480	37,506,977	5%	337,524	635,247	38,142,224	20,266,002	1.430	11,860	15,129
2045	28,069,958	76.0%	21,322,640	6,747,317	40,130,901	5%	337,366	634,949	40,765,850	21,660,006	1.452	12,676	16,170
2050	29,455,095	77.2%	22,728,839	6,726,256	42,777,478	5%	336,313	632,967	43,410,445	23,065,152	1.474	13,498	17,219

RESULTS SUMMARY

The demand results from Tables 7, 10, 13 and 14 and the table in Appendix C that show the total dentist need in each year are summarized in Table 15.

Table 15. Dentist requirements to meet population and policy alternatives

	2010	2015	2020	2025	2030	2035	2040	2045	2050
No population growth	9,446	9,446	9,446	9,446	9,446	9,446	9,446	9,446	9,446
Pop growth--0% capture	9,446	10,035	10,715	11,375	11,997	12,702	13,404	14,103	14,799
Pop growth--1% capture	9,446	10,084	10,818	11,539	12,226	13,004	13,785	14,568	15,354
Pop growth--5% capture	9,446	10,279	11,222	12,164	13,078	14,098	15,129	16,170	17,219
Pop growth--10% capture	9,446	10,523	11,704	12,873	14,001	15,229	16,455	17,678	18,894

The number of required dentists from the service level model can be used in the workforce projection model to determine the number of new dentists that need to be added to the workforce to meet the workforce need while considering voluntary attrition and mortality. Appendix D includes the results for the three increased service level scenarios which consider the expected population growth. Table 16 includes the results for the number of new dentists that must be added in each 5-year interval to meet the workforce needs for each population and policy alternative using data from Tables 7 and 11 and Tables D.1, D.3 and D.5 in Appendix D.

Table 16. 5-year recruiting requirements to meet population and policy alternatives

	2011-15	2016-20	2021-25	2026-30	2031-35	2036-40	2041-45	2046-50
No population growth	1,208	1,294	1,286	1,262	1,223	1,119	1,080	949
Pop growth--0% capture	1,777	1,978	1,960	1,907	1,965	1,875	1,882	1,802
Pop growth--1% capture	1,826	2,034	2,022	1,975	2,042	1,959	1,975	1,907
Pop growth--5% capture	2,021	2,244	2,246	2,210	2,296	2,228	2,268	2,222
Pop growth--10% capture	2,265	2,484	2,480	2,433	2,518	2,443	2,487	2,446

The annual recruiting requirements from Tables 8 and 12, and Tables D.2, D.4 and D.6 in Appendix D are summarized in Table 17.

Table 17. Annual recruiting requirements to meet population and policy alternatives

	2011-15	2016-20	2021-25	2026-30	2031-35	2036-40	2041-45	2046-50
No population growth	242	259	257	252	245	224	216	190
Pop growth--0% capture	355	396	392	381	393	375	376	360
Pop growth--1% capture	365	407	404	395	408	392	395	381
Pop growth--5% capture	404	449	449	442	459	446	454	444
Pop growth--10% capture	453	497	496	487	504	489	497	489

CONCLUSIONS AND DEMANDS FOR NEW DENTISTS

The *Report on the 2009-2010 Workforce Survey of Dentists* by the Florida Department of Health that included the results of an extensive survey of dentists provided much needed valuable data on current dental practice in Florida. The report conducted an initial examination of workforce needs that considered planned retirements from active dentistry. The report did not consider any mortality effects in its workforce projections and noted that it did not consider population growth or any changes in service levels.

This analysis follows up on that initial analysis and extends the analysis to consider the important areas not addressed in the original analysis. The new results account for mortality in projecting workforce needs to meet identified total workforce levels. The analysis identifies five different workforce levels:

- No population growth and maintenance of current level of service
- Respond to population growth and maintenance of current level of service
- Respond to population growth and capture 1 percent of the population not currently served
- Respond to population growth and capture 5 percent of the population not currently served
- Respond to population growth and capture 0 percent of the population not currently served

The resulting estimated number of new dentists needed annually in 5-year periods is shown in Figure 1.

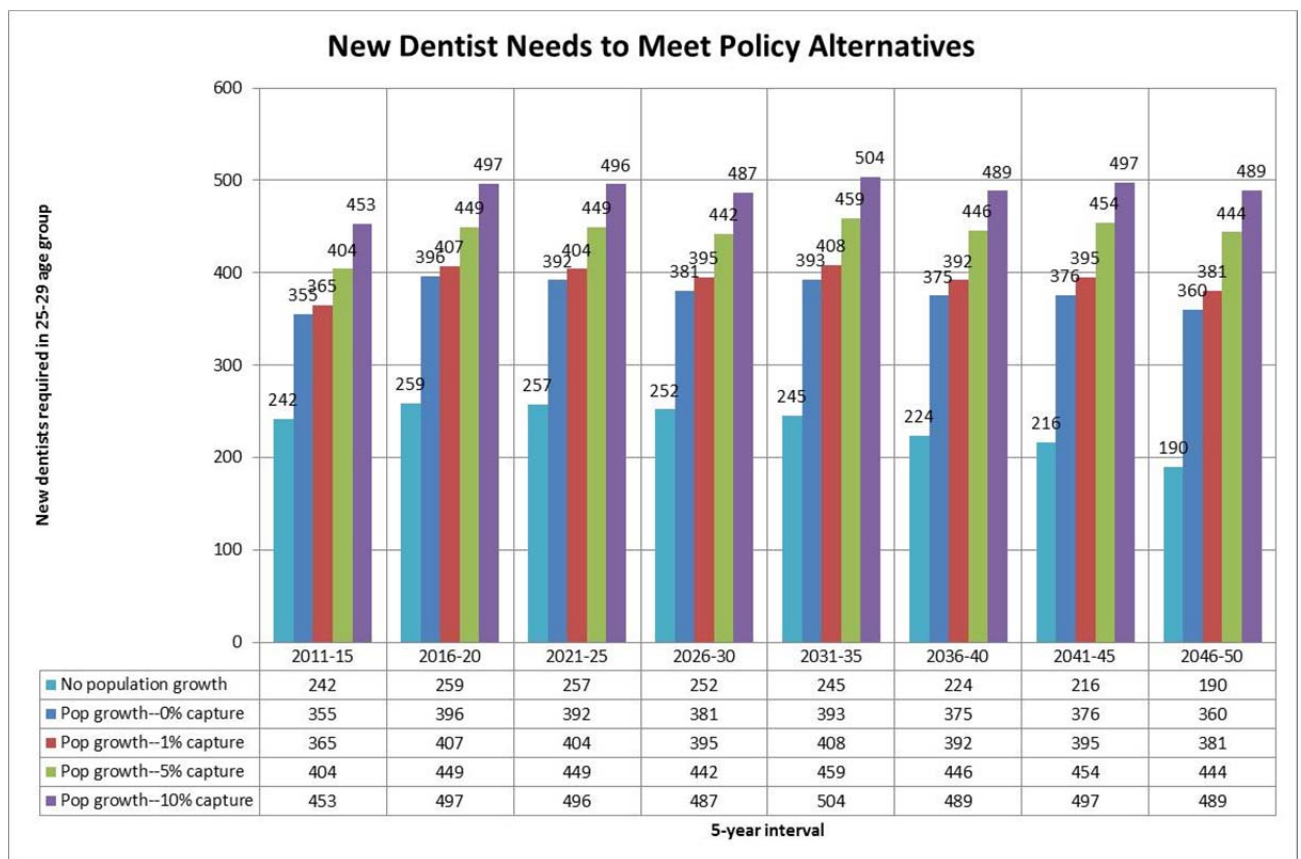


Figure 1. Annual new dentist needs to meet policy alternatives.

As indicated in the *Workforce Report* and above, the University of Florida College of Dentistry currently contributes about 70 dentists and Nova Southeastern University College of Dental Medicine currently contributes about 80 dentists each year to Florida's practicing dentists. Comparing this supply with the total needs in Table 17 and Figure 1 leads to the following table of dentist needs that must be met from other dental schools.

Table 18. Annual recruiting requirements to supplement current Florida dental schools

	2011-15	2016-20	2021-25	2026-30	2031-35	2036-40	2041-45	2046-50
No population growth	92	109	107	102	95	74	66	40
Pop growth--0% capture	205	246	242	231	243	225	226	210
Pop growth--1% capture	215	257	254	245	258	242	245	231
Pop growth--5% capture	254	299	299	292	309	296	304	294
Pop growth--10% capture	303	347	346	337	354	339	347	339

The *Workforce Report* estimated the availability an additional 307 dentists per year based on existing licensing experience (includes graduates from current Florida dental schools). If one considers keeping the current level of service but planning to meet the growing population, the current projection of dentist increase is insufficient to meet the need (e.g., 355 dentists needed in 2011-2015). If the state pursues initiatives to increase oral health and increase the percentage of the population that is seeing a dentist, the need increases further, depending on how aggressively oral health is pursued. If a moderate approach (capture 5 percent of those not currently served by a dentist) is pursued, the demand for new dentists ranges from 254 to 309 dentists more than currently produced by Florida dental schools.

The data and analysis suggest that the need for upwards of 200 dentists per year is not met by existing Florida dental schools. New dental schools in Florida could help to meet that need and importantly would not be creating an oversupply of dentists.

REFERENCES

Florida Department of Health, *Report on the 2009-2010 Workforce Survey of Dentists*, Tallahassee, FL, March 2011.

Appendix A: WORLD HEALTH ORGANIZATION GLOBAL HEALTH OBSERVATORY DATA REPOSITORY LIFE TABLES

2009	United States of America—Both Sexes							
Age Group	nMx - age-specific death rate between ages x and x+n	nx - probability of dying between ages x and x+n	lx - number of people left alive at age x	ndx - number of people dying between ages x and x+n	nLx - person-years lived between ages x and x+n	Tx - person-years lived above age x	ex - expectation of life at age x	
<1	0.00672	0.00668	100000	668	99399	7851033	78.5	
1-4	0.00028	0.00111	99332	110	397065	7751634	78	
5-9	0.00013	0.00066	99222	66	495947	7354569	74.1	
10-14	0.00017	0.00083	99157	82	495578	6858622	69.2	
15-19	0.0006	0.00301	99074	298	494627	6363044	64.2	
20-24	0.00094	0.00471	98776	465	492718	5868417	59.4	
25-29	0.00097	0.00481	98311	473	490371	5375699	54.7	
30-34	0.00108	0.00539	97838	528	487869	4885328	49.9	
35-39	0.00142	0.00708	97310	689	484828	4397459	45.2	
40-44	0.00215	0.01071	96621	1035	480518	3912631	40.5	
45-49	0.0033	0.01637	95586	1565	474017	3432113	35.9	
50-54	0.00495	0.02444	94021	2298	464360	2958096	31.5	
55-59	0.00708	0.0348	91723	3192	450637	2493736	27.2	
60-64	0.01045	0.05091	88531	4507	431389	2043099	23.1	
65-69	0.01598	0.07682	84024	6455	403984	1611710	19.2	
70-74	0.02443	0.11513	77569	8930	365520	1207726	15.6	
75-79	0.03847	0.17547	68639	12044	313083	842206	12.3	
80-84	0.06271	0.27107	56595	15341	244620	529123	9.3	
85-89	0.10134	0.40427	41253	16677	164573	284503	6.9	
90-94	0.16284	0.54698	24576	13443	82552	119930	4.9	
95-99	0.26171	0.68296	11133	7604	29054	37379	3.4	
100+	0.424	1	3530	3530	8325	8325	2.4	

Downloaded from <http://apps.who.int/ghodata/?vid=720#> on July 4, 2011

Appendix B. FLORIDA POPULATION ESTIMATES
Florida Resident Population
April 1

Year	FDEC 2010			FDEC 2011		
	Population	% Change	Change	Population	% Change	Change
1990	12,938,071	2.27%	287,136	12,938,071	2.27%	287,136
1991	13,258,732	2.48%	320,661	13,258,732	2.48%	320,661
1992	13,497,541	1.80%	238,809	13,497,541	1.80%	238,809
1993	13,730,115	1.72%	232,574	13,730,115	1.72%	232,574
1994	14,043,757	2.28%	313,642	14,043,757	2.28%	313,642
1995	14,335,992	2.08%	292,235	14,335,992	2.08%	292,235
1996	14,623,421	2.00%	287,429	14,623,421	2.00%	287,429
1997	14,938,314	2.15%	314,893	14,938,314	2.15%	314,893
1998	15,230,421	1.96%	292,107	15,230,421	1.96%	292,107
1999	15,580,244	2.30%	349,823	15,580,244	2.30%	349,823
2000	15,982,824	2.58%	402,580	15,982,824	2.58%	402,580
2001	16,330,224	2.17%	347,400	16,331,179	2.18%	348,355
2002	16,674,608	2.11%	344,384	16,654,470	1.98%	323,291
2003	17,071,508	2.38%	396,900	17,000,812	2.08%	346,342
2004	17,516,732	2.61%	445,224	17,378,150	2.22%	377,338
2005	17,918,227	2.29%	401,495	17,768,289	2.24%	390,139
2006	18,349,132	2.40%	430,905	18,168,964	2.26%	400,675
2007	18,680,367	1.81%	331,235	18,436,174	1.47%	267,210
2008	18,807,219	0.68%	126,852	18,579,976	0.78%	143,802
2009	18,750,483	-0.30%	-56,736	18,690,898	0.60%	110,922
2010	18,772,352	0.12%	21,869	18,801,310	0.59%	110,412
Begins forecast						
2011	18,863,859	0.49%	91,507 18,	920,975	0.64%	119,665
2012	19,012,578	0.79%	148,719	19,073,170	0.80%	152,195
2013	19,276,995	1.39%	264,417	19,340,145	1.40%	266,975
2014	19,586,377	1.60%	309,382	19,656,210	1.63%	316,065
2015	19,890,987	1.56%	304,610	19,974,415	1.62%	318,205
2016	20,180,412	1.46%	289,425	0,274,309	1.50%	299,894
2017	20,456,932	1.37%	276,520	20,552,516	1.37%	278,207
2018	20,724,542	1.31%	267,610	20,816,013	1.28%	263,497
2019	20,987,236	1.27%	262,694	21,071,781	1.23%	255,768
5-Year Averages				5-Year Averages		
2020	21,249,007	1.33%	271,604	21,326,799	1.32%	270,477
2025	22,569,115	1.21%	264,022	22,641,337	1.20%	262,908
2030	23,811,183	1.08%	248,414	23,877,889	1.07%	247,310

Florida Demographic Estimating Conference, February 9, 2011 downloaded from
<http://edr.state.fl.us/Content/conferences/population/demographictables.pdf> on July 5, 2011

Appendix C. DENTIST REQUIREMENTS FOR INCREASED POPULATION FOR 10% CAPTURE OF UNSERVED POPULATION

Year	Population	% of population that see dentist	Population that sees a dentist	Population that does not see a dentist	Patient encounters for current patients	% of non-dentist population that starts seeing a dentist	Population that starts seeing a dentist	Patient visits for new population	Total patient encounters	Total population seeing dentist	Visits per year for total population	General and public health dentists	All dentists
2010	18,801,310	67.3%	12,653,282	6,148,028	23,814,480	0			23,814,480		1.267	7,405	9,446
2015	19,974,415	67.3%	13,442,781	6,531,634	25,300,381	10%	653,163	1,229,305	26,529,686	14,095,945	1.328	8,249	10,523
2020	21,326,799	70.6%	15,050,322	6,276,477	28,325,900	10%	627,648	1,181,283	29,507,183	15,677,970	1.384	9,175	11,704
2025	22,641,337	73.5%	16,644,326	5,997,011	31,325,942	10%	599,701	1,128,685	32,454,627	17,244,027	1.433	10,092	12,873
2030	23,877,889	76.2%	18,185,806	5,692,083	34,227,130	10%	569,208	1,071,295	35,298,425	18,755,014	1.478	10,976	14,001
2035	25,281,736	78.5%	19,857,674	5,424,063	37,373,718	10%	542,406	1,020,852	38,394,569	20,400,080	1.519	11,939	15,229
2040	26,678,958	80.7%	21,527,512	5,151,446	40,516,485	10%	515,145	969,543	41,486,028	22,042,656	1.555	12,900	16,455
2045	28,069,958	82.6%	23,191,926	4,878,031	43,649,046	10%	487,803	918,084	44,567,130	23,679,730	1.588	13,858	17,678
2050	29,455,095	84.4%	24,848,227	4,606,868	46,766,336	10%	460,687	867,049	47,633,385	25,308,914	1.617	14,811	18,894

Appendix D. RECRUITING REQUIREMENTS FOR INCREASED LEVELS OF SERVICE

Table D-1. Recruiting requirements for increased population for 1% increase level of service

Year	2010	2015	2020	2025	2030	2035	2040	2045	2050
Age Group									
25-29	417	1826	2034	2022	1975	2042	1959	1975	1907
30-34	990	413	1811	2016	2005	1958	2024	1942	1959
35-39	990	976	408	1786	1988	1977	1931	1996	1915
40-44	1176	975	961	401	1758	1957	1946	1901	1965
45-49	1176	1150	953	940	393	1719	1914	1903	1859
50-54	1249	1143	1118	927	914	382	1672	1862	1851
55-59	1249	1144	1047	1024	849	837	350	1531	1705
60-64	831	1131	1036	948	927	769	758	317	1387
65-69	831	549	748	685	627	613	508	501	209
70-74	245	534	353	481	440	403	394	327	322
75-79	245	121	263	174	237	217	198	194	161
80-84	34	112	55	120	80	108	99	91	89
85-89	34	10	33	16	35	23	32	29	26
Total	9,466	10,084	10,818	11,539	12,226	13,004	13,785	14,568	15,354
Desired	9,446	10,084	10,818	11,539	12,226	13,004	13,785	14,568	15,354

Table D-2. Annual recruiting requirements for increased population for 1% increase level of service

Pop growth--1% capture	2011-15	2016-20	2021-25	2026-30	2031-35	2036-40	2041-45	2046-50
Annual new dentists	365	407	404	395	408	392	395	381
UF	70	70	70	70	70	70	70	70
Nova Southeastern	80	80	80	80	80	80	80	80
Other new dentists	215	257	254	245	258	242	245	231

Table D-3. Recruiting requirements for increased population for 5% increase level of service

Year	2010	2015	2020	2025	2030	2035	2040	2045	2050
Age Group									
25-29	417	2021	2244	2246	2210	2296	2228	2268	2222
30-34	990	413	2004	2225	2227	2191	2277	2209	2248
35-39	990	976	408	1976	2194	2196	2161	2245	2178
40-44	1176	975	961	401	1945	2160	2162	2127	2210
45-49	1176	1150	953	940	393	1903	2113	2115	2080
50-54	1249	1143	1118	927	914	382	1850	2055	2056
55-59	1249	1144	1047	1024	849	837	350	1694	1881
60-64	831	1131	1036	948	927	769	758	317	1535
65-69	831	549	748	685	627	613	508	501	209
70-74	245	534	353	481	440	403	394	327	322
75-79	245	121	263	174	237	217	198	194	161
80-84	34	112	55	120	80	108	99	91	89
85-89	34	10	33	16	35	23	32	29	26
Total	9,466	10,279	11,222	12,164	13,078	14,098	15,129	16,170	17,219
Desired	9,446	10,279	11,222	12,164	13,078	14,098	15,129	16,170	17,219

Table D-4. Annual recruiting requirements for increased population for 5% increase level of service

Pop growth--5% capture	2011-15	2016-20	2021-25	2026-30	2031-35	2036-40	2041-45	2046-50
Annual new dentists	404	449	449	442	459	446	454	444
UF	70	70	70	70	70	70	70	70
Nova Southeastern	80	80	80	80	80	80	80	80
Other new dentists	254	299	299	292	309	296	304	294

Table D-5. Recruiting requirements for increased population for 10% increase level of service

Year	2010	2015	2020	2025	2030	2035	2040	2045	2050
Age Group									
25-29	417	2265	2484	2480	2433	2518	2443	2487	2446
30-34	990	413	2246	2463	2459	2412	2497	2422	2466
35-39	990	976	408	2215	2429	2424	2379	2462	2388
40-44	1176	975	961	401	2180	2391	2386	2341	2423
45-49	1176	1150	953	940	393	2132	2338	2334	2290
50-54	1249	1143	1118	927	914	382	2074	2274	2270
55-59	1249	1144	1047	1024	849	837	350	1899	2082
60-64	831	1131	1036	948	927	769	758	317	1720
65-69	831	549	748	685	627	613	508	501	209
70-74	245	534	353	481	440	403	394	327	322
75-79	245	121	263	174	237	217	198	194	161
80-84	34	112	55	120	80	108	99	91	89
85-89	34	10	33	16	35	23	32	29	26
Total	9,466	10,523	11,704	12,873	14,001	15,229	16,455	17,678	18,894
Desired	9,446	10,523	11,704	12,873	14,001	15,229	16,455	17,678	18,894

Table D-6. Annual recruiting requirements for increased population for 10% increase level of service

Pop growth--10% capture	2011-15	2016-20	2021-25	2026-30	2031-35	2036-40	2041-45	2046-50
Annual new dentists	453	497	496	487	504	489	497	489
UF	70	70	70	70	70	70	70	70
Nova Southeastern	80	80	80	80	80	80	80	80
Other new dentists	303	347	346	337	354	339	347	339



**POTENTIAL DENTAL STUDENT ANALYSIS:
AVAILABILITY, QUALITY, AND AFFORDABILITY**

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July 2011

POTENTIAL DENTAL STUDENT ANALYSIS: AVAILABILITY, QUALITY, AND AFFORDABILITY

EXECUTIVE SUMMARY

The proposal for the UCF College of Dental Medicine envisions a nominal annual enrollment of 100 students in each class. The financial model is based on a self-sufficiency concept that relies on tuition, clinical practice funding, and research funding to support the operation of the college with no need for new state appropriations for direct educational operations. For programs in private institutions, tuition is generally set at levels that will cover the cost of instruction after accounting for contributions for other sources such as foundation, clinical practice, and research. For public institutions, there is usually a non-resident fee above the tuition level or a separate non-resident tuition that is intended to cover the cost of instruction. Because this proposal requires no new state appropriations for its operations, this model requires the tuition levels to be set at market rates sufficient to provide the needed financial support. The proposal specifically anticipates a tuition level of \$55,675 per year for class starting in 2014. Using the tuition escalation factor of 3 percent that is used in the proposal, this starting tuition is equivalent to a first-year tuition of \$48,025 in 2009, the base year for comparison in this analysis.

The viability of such a model requires that there be a reasonable expectation that a sufficient pool of students who have the quality preparation would apply to a market-rate program. These are the basic questions that are addressed in this analysis:

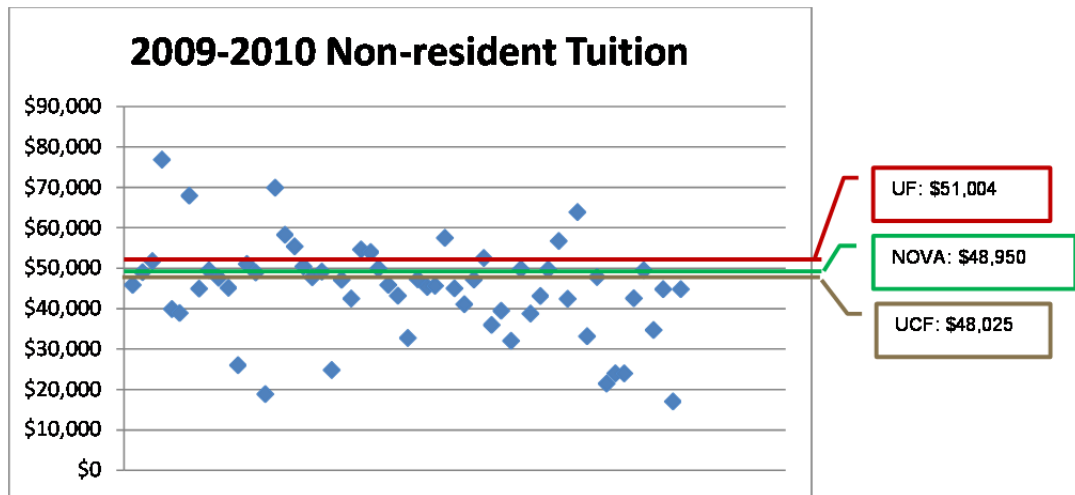
- Is the private market-rate model proposed for the UCF College of Dental Medicine a viable financial model to support the dental education program?
- Is there a “supply” of high quality students available to attend a new program?
- Would students be willing to pay the proposed level of tuition to attend the dental program?

Based on the evidence presented in the analysis, the answer to all three questions is YES.

Of the 12,202 individuals who applied for dental school for the 2009-2010 academic year, 5,089 (41.7 percent) were enrolled. There is a significant unmet need by prospective dental students for admission to a dental program, including over 400 Florida residents who were not admitted to a dental school.

The enrolled students in fall 2009 generally displayed a high performance level on the Dental Admission Test (DAT) and their undergraduate GPAs. This performance is associated with 40 percent of the applicants. If these are the highest performers, it is likely that the next 10 percent will be relatively good performers as well with performance levels near the mean of those who were admitted to existing programs. These applicants represent a well-qualified pool. Existing Florida dental schools have been able to attract high quality students and it is expected that UCF, with its high quality reputation, would be attractive to those additional students.

The appropriate reference point for examining tuition for the proposed UCF College of Dental Medicine is the non-resident tuition at other dental schools. Non-resident tuition levels range from a low of \$16,991 (University of Puerto Rico) to a high of \$76,832 (University of the Pacific). The proposed UCF College of Dental Medicine equivalent first-year tuition of \$48,025 in 2009, the base year for comparison in this analysis, is indicated in the following figure along with the 2009-2010 tuition levels for the University of Florida College of Dentistry (\$51,004) and NOVA Southeastern University College of Dental Medicine (\$48,950).



Florida has 243 residents newly enrolled in a U.S. dental school in 2009-2010. A total of 128 are enrolled in Florida schools and 115 in out-of-state dental schools. Those Florida residents attending out-of-state schools pay an average tuition of \$46,475. The proposed tuition for the UCF College of Dental Medicine of \$48,025 (2009-2010 dollars) compares favorably with this level, and is also below the NOVA non-resident tuition of \$48,950 and the UF non-resident tuition of \$51,004. Almost 45 percent of the newly enrolled students attend private or private-state related dental schools with average non-resident tuitions of \$50,045 and \$46,709, respectively.

Of the 5,089 first year enrolled students in fall 2009, 1,690 students were paying tuition at or above the fall 2009 UCF College of Dental Medicine equivalent tuition of \$48,025. This represents over 33 percent of all newly enrolled dental students paying tuition above the proposed UCF market rate. Moreover, in Florida's two dental schools, 49 percent of the students pay tuition greater than the proposed UCF rate. In addition, the UCF escalation rate of 3 percent is below the recently experienced increases in Florida that will result in the UCF rate being more competitive.

The data strongly suggest that there is an unmet need of high quality students who have the capacity and willingness to pay market-rate tuition. There is nothing in the data to suggest that the proposed UCF market-rate model is not viable.

INTRODUCTION

The proposal for the UCF College of Dental Medicine envisions a nominal annual enrollment of 100 students in each class. The financial model is based on a self-sufficiency concept that relies on tuition, clinical practice funding, and research funding to support the operation of the college with no need for new state appropriations for direct educational operations.

For programs in private institutions, tuition is generally set at levels that will cover the cost of instruction after accounting for contributions for other sources such as foundation, clinical practice, and research. For public institutions, there is usually a non-resident fee above the tuition level or a separate non-resident tuition that is intended to cover the cost of instruction. Because this proposal requires no new state appropriations for its operations, this model requires the tuition levels to be set at market rates sufficient to provide the needed financial support. The proposal specifically anticipates a tuition level of \$55,675 per year for class starting in 2014. Using the tuition escalation factor of 3 percent that is used in the proposal, this starting tuition is equivalent to a first-year tuition of \$48,025 in 2009, the base year for comparison in this analysis. For comparison purposes, the University of Florida College of Dentistry first-year non-resident tuition for 2009-2010 is \$51,004.

The viability of such a model requires that there be a reasonable expectation that a sufficient pool of students who have the quality preparation would apply to a market-rate program. The purpose of this analysis is to provide information on the availability of potential applicants, their quality, and their willingness to pay market-rate tuition that will yield some insight regarding the viability of the proposal.

The American Dental Association conducts a comprehensive annual survey of all dental schools. The analysis presented here relies on data from the American Dental Association's *2009-2010 Survey of Dental Education* published in May 2011 [ADA Survey Report]. Particular use is made of data in *Academic Programs, Enrollment, and Graduates – Volume 1* and *Tuition, Admission, and Attrition – Volume 2* for U.S. dental schools (Canadian schools are excluded). Particular emphasis is placed on data related to Florida students and to the existing Florida dental schools.

GENERAL CHARACTERISTICS OF DENTAL SCHOOLS

The *ADA Survey Report* notes that there has not been a significant change in the number and type of dental schools in the past decade as illustrated in Table 1.

Table 1. Growth of dental schools

Type of Institutional Support	1999-2000	2009-2010
Public	36 (65.5%)	37 (63.8%)
Private	14 (25.5%)	17 (29.3%)
Private-State Related	5 (9.1%)	4 (6.9%)
Total	55 (100%)	58 (100%)

In addition to the existing programs that reported for 2009-2010, there are several new dental schools that have received initial accreditation, including LECOM College of Dental Medicine, Bradenton, FL, Midwestern University College of Dental Medicine-Illinois, Downers Grove, IL, and East Carolina University School of Dental Medicine, Greenville, NC. Their impact on student availability is not explicitly considered in this analysis.

Table 2 includes some comparative data for the existing dental schools (where available) for the ten year period from 2000-2001 to 2009-2010. These data were extracted from various tables in the ADA Survey Report.

Table 2. Dental school comparative data, 2000-2001 to 2009-2010

All U.S. Dental Schools	2000-2001	2009-2010
Applications received		110,795
Applications examined	52,354	57,634
Number of applicants	7,770	12,202
First-year enrollment--FYE (new)	4,327	5,089
Repeater enrollment	57	52
FYE in state of residence		3,057 (60.1%)
FYE Male	2,606 (60.2%)	2,762 (54.3%)
FYE Female	1,721 (39.8%)	2,327 (45.7%)
FYE White	2,815 (65.1%)	2,976 (58.5%)
FYE Black	223 (5.2%)	300 (5.9%)
FYE Hispanic	237 (5.5%)	324 (6.4%)
FYE American Indian	30 (0.7%)	23 (0.5%)
FYE Asian	954 (22.0%)	1,248 (24.5%)
First-year tuition (resident)		\$30,866
First-year tuition (non-resident)		\$44,810
DAT Academic Average		18.8
Pre-dental overall GPA		3.54

The data show that in 2009-2010, only slightly more than half of the 110,795 applications were examined. On average, the 12,202 applicants submitted slightly more than 9 applications each. During the past 10 years, the number of examined application increased by about 1 percent per year, while during the same period, the number of applicants increased by an average of 4.6 percent per year (note that Table 3 in Volume 1 of the ADA Survey Report shows that the number of applicants reached a high of 13,742 in 2007-2008, before the economic downturn). During the same period the number of positions increased by about 1.6 percent per year with the addition of four new schools and the closure of one program that account for about half of the increase. Other changes that are noticeable include the increase in enrollment by women (from 39.8 percent to 45.7 percent) and non-white students (from 34.9 percent to 41.5 percent).

STATE OF RESIDENCY AND STUDENT AVAILABILITY

Table 3 shows the first-year enrollment in dental schools for 2009-2010 by residency status.

Table 3. Dental school first-year enrollment by residency status, 2009-2010

ST	DENTAL SCHOOL	Support	FYE	In-state	US Out-of-state	Foreign	% In-state	% US Out-of-state	% Foreign
AL	UNIVERSITY OF ALABAMA	Public	55	42	13	0	76.4%	23.6%	0.0%
AZ	A.T. STILL UNIVERSITY OF HEALTH SCIENCES ARIZONA	Private	67	17	49	1	25.4%	73.1%	1.5%
AZ	MIDWESTERN UNIVERSITY	Private	112	23	88	1	20.5%	78.6%	0.9%
CA	UNIVERSITY OF THE PACIFIC	Private	165	134	27	4	81.2%	16.4%	2.4%
CA	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	Public	88	71	17	0	80.7%	19.3%	0.0%
CA	UNIVERSITY OF CALIFORNIA, LOS ANGELES	Public	88	76	12	0	86.4%	13.6%	0.0%
CA	UNIVERSITY OF SOUTHERN CALIFORNIA	Private	143	109	30	4	76.2%	21.0%	2.8%
CA	LOMA LINDA UNIVERSITY	Private	100	53	44	3	53.0%	44.0%	3.0%
CA	WESTERN UNIVERSITY OF HEALTH SCIENCES	Private	73	67	5	1	91.8%	6.8%	1.4%
CO	UNIVERSITY OF COLORADO	Public	52	32	20	0	61.5%	38.5%	0.0%
CT	UNIVERSITY OF CONNECTICUT	Public	42	27	13	2	64.3%	31.0%	4.8%
DC	HOWARD UNIVERSITY	Private	80	0	72	8	0.0%	90.0%	10.0%
FL	UNIVERSITY OF FLORIDA	Public	83	73	9	1	88.0%	10.8%	1.2%
FL	NOVA SOUTHEASTERN UNIVERSITY	Private	108	55	43	10	50.9%	39.8%	9.3%
GA	MEDICAL COLLEGE OF GEORGIA	Public	65	62	3	0	95.4%	4.6%	0.0%
IL	SOUTHERN ILLINOIS UNIVERSITY	Public	53	52	1	0	98.1%	1.9%	0.0%
IL	UNIVERSITY OF ILLINOIS, CHICAGO	Public	68	68	0	0	100.0%	0.0%	0.0%
IN	INDIANA UNIVERSITY	Public	103	75	24	4	72.8%	23.3%	3.9%
IA	UNIVERSITY OF IOWA	Public	81	58	23	0	71.6%	28.4%	0.0%
KY	UNIVERSITY OF KENTUCKY	Public	57	40	14	3	70.2%	24.6%	5.3%
KY	UNIVERSITY OF LOUISVILLE	Public	85	46	39	0	54.1%	45.9%	0.0%
LA	LOUISIANA STATE UNIVERSITY	Public	65	55	10	0	84.6%	15.4%	0.0%
MD	UNIVERSITY OF MARYLAND	Public	130	69	61	0	53.1%	46.9%	0.0%
MA	HARVARD UNIVERSITY	Private	35	4	28	3	11.4%	80.0%	8.6%
MA	BOSTON UNIVERSITY	Private	190	26	68	96	13.7%	35.8%	50.5%
MA	TUFTS UNIVERSITY	Private	180	41	136	3	22.8%	75.6%	1.7%
MI	UNIVERSITY OF DETROIT - MERCY	Private-State Related	88	65	16	7	73.9%	18.2%	8.0%
MI	UNIVERSITY OF MICHIGAN	Public	105	51	52	2	48.6%	49.5%	1.9%
MN	UNIVERSITY OF MINNESOTA	Public	98	67	30	1	68.4%	30.6%	1.0%
MS	UNIVERSITY OF MISSISSIPPI	Public	37	37	0	0	100.0%	0.0%	0.0%
MO	UNIVERSITY OF MISSOURI, KANSAS CITY	Public	102	75	27	0	73.5%	26.5%	0.0%
NC	UNIVERSITY OF NORTH CAROLINA	Public	82	73	7	2	89.0%	8.5%	2.4%
NE	CREIGHTON UNIVERSITY	Private	88	6	82	0	6.8%	93.2%	0.0%
NE	UNIVERSITY OF NEBRASKA	Public	46	33	13	0	71.7%	28.3%	0.0%
NV	UNIVERSITY OF NEVADA, LAS VEGAS	Public	80	51	29	0	63.8%	36.3%	0.0%
NJ	U. OF MEDICINE & DENTISTRY OF NEW JERSEY	Public	95	60	31	4	63.2%	32.6%	4.2%
NY	COLUMBIA UNIVERSITY	Private	80	32	2	46	40.0%	2.5%	57.5%
NY	NEW YORK UNIVERSITY	Private	239	91	148	0	38.1%	61.9%	0.0%
NY	STATE UNIVERSITY OF NEW YORK, STONY BROOK	Public	41	38	1	2	92.7%	2.4%	4.9%
NY	STATE UNIVERSITY OF NEW YORK, BUFFALO	Public	92	65	27	0	70.7%	29.3%	0.0%
OH	OHIO STATE UNIVERSITY	Public	106	82	24	0	77.4%	22.6%	0.0%
OH	CASE SCHOOL OF DENTAL MEDICINE	Private	70	17	41	12	24.3%	58.6%	17.1%
OK	UNIVERSITY OF OKLAHOMA	Public	58	46	12	0	79.3%	20.7%	0.0%
OR	OREGON HEALTH & SCIENCE UNIVERSITY	Public	75	47	28	0	62.7%	37.3%	0.0%
PA	TEMPLE UNIVERSITY	Private-State Related	128	61	67	0	47.7%	52.3%	0.0%
PA	UNIVERSITY OF PENNSYLVANIA	Private	116	30	63	23	25.9%	54.3%	19.8%
PA	UNIVERSITY OF PITTSBURGH	Private-State Related	80	35	40	5	43.8%	50.0%	6.3%
SC	MEDICAL UNIVERSITY OF SOUTH CAROLINA	Public	58	52	6	0	89.7%	10.3%	0.0%
TN	MEHARRY MEDICAL COLLEGE	Private	50	7	43	0	14.0%	86.0%	0.0%
TN	UNIVERSITY OF TENNESSEE	Public	80	51	29	0	63.8%	36.3%	0.0%
TX	TEXAS A&M UNIVERSITY - BAYLOR COLLEGE	Public	107	98	9	0	91.6%	8.4%	0.0%
TX	UNIVERSITY OF TEXAS, HOUSTON	Public	83	83	0	0	100.0%	0.0%	0.0%
TX	UNIVERSITY OF TEXAS, SAN ANTONIO	Public	100	98	1	1	98.0%	1.0%	1.0%
VA	VIRGINIA COMMONWEALTH UNIVERSITY	Public	103	62	38	3	60.2%	36.9%	2.9%
WA	UNIVERSITY OF WASHINGTON	Public	63	56	7	0	88.9%	11.1%	0.0%
WV	WEST VIRGINIA UNIVERSITY	Public	50	34	13	3	68.0%	26.0%	6.0%
WI	MARQUETTE UNIVERSITY	Private-State Related	80	39	40	1	48.8%	50.0%	1.3%
PR	UNIVERSITY OF PUERTO RICO	Public	41	40	1	0	97.6%	2.4%	0.0%
	TOTAL		5,089	3,057	1,776	256	60.1%	34.9%	5.0%

Table 3 reveals that an average of slightly more than 60 percent of the enrollment in U.S. dental schools is composed of students from the state in which the dental school is located. This ranges from a low of 0.0 percent in Washington, D.C. (Howard University) to 100.0 percent in Mississippi (University of Mississippi). Note that the University of Florida College of Dentistry enrolled 88.0 percent of its students from Florida residents while the NOVA Southeastern University College of Dental Medicine enrolled 50.9 percent of its students from Florida residents.

Figure 1 (extracted from Figure 8 of Volume 1 of the ADA Survey Report) shows the region of residence of U.S. students in dental schools. The South Atlantic region, which includes Florida, has the second highest percentage of students in dental school (16.3 percent) behind the Pacific region (18.3 percent) indicating a relatively strong demand from the South Atlantic region.

Figure 1. Region of residence of first-year United States dental students, 2009-2010

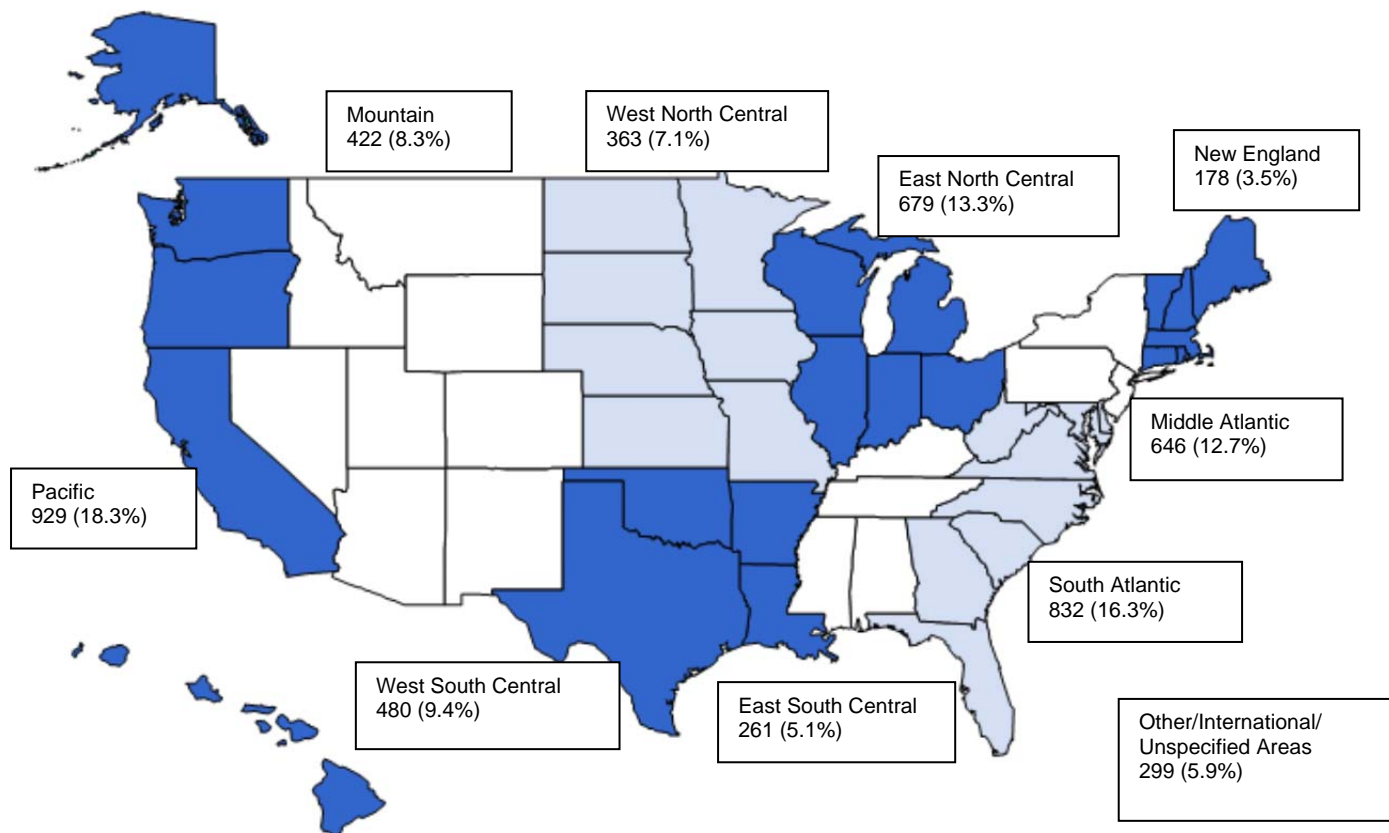


Table 13 in Volume 1 of the ADA Survey Report provides a detailed breakdown of the 5,089 first-year dental students in each dental school by state of residence. Of note, there are 243 Florida residents newly enrolled in a U.S. dental school in 2009-2010. Of those, slightly less than 53 percent are enrolled in Florida dental schools (73 at the University of Florida and 55 at NOVA Southeastern University). The remaining 115 (47 percent) are enrolled in 36 other dental schools with the largest number (nine) at Temple University (see Table 4). This represents a significant number of Florida residents who were either unable to be admitted to a Florida school or chose to enroll in an out-of-state school (at non-resident tuition rates).

The ADEA Official Guide to Dental Schools, 2011 (p. 14) reports that there were 233 Florida residents enrolled in their first year of dental school in fall 2009 (compared with 243 reported in the ADA report). A total of 612 Florida residents has submitted over 6,400

applications to dental schools for the fall 2009 class. This means that nearly 62 percent (233/612) of Florida residents were not accepted at a U.S. dental school.

Nationally, excluding Florida residents, there were 11,590 applicants and 4,846 new dental students who matriculated in fall 2009. This means that over 58 percent (6,744/11590) of non-Florida applicants for dental school were not accepted at a U.S. dental school.

These data suggest that there is a pool of dental school applicants that remains available for application to new dental schools and particularly, that there is a sizeable number of Florida residents interested in dental school.

STUDENT QUALITY

The Dental Admission Test (DAT) and the applicant's GPA are key performance metrics that dental schools use when offering admission to an applicant. Averages for the DAT Academic Average score and pre-dental overall GPA are included in Table 4. DAT Perceptual Ability scores and DAT Sciences scores are available in Table 22 of Volume 2 of the *ADA Survey Report*. Pre-dental science GPA averages scores are available in Table 23 of Volume 2 of the *ADA Survey Report*.

The weighted average DAT score from Table 4 is 18.8 (school averages weighted by first-year student enrollment). Individual school averages range from a low of 16.0 (Meharry Medical College) to a high of 21.7 (Columbia University). The weighted average pre-dental overall GPA is 3.54 with school averages ranging from a low of 3.16 (Meharry Medical College) to a high of 3.83 (University of Nebraska).

Figures 2 and 3 illustrate the distribution of average DAT Academic Average and Pre-dental overall GPA averages for each of the dental schools. Within each school, there is also a distribution of scores that obviously range above and below the averages reported in Table 4 and illustrated in the figures.

Figure 2. DAT Academic Average scores for individual dental schools

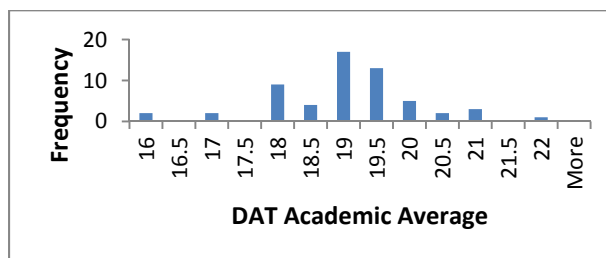
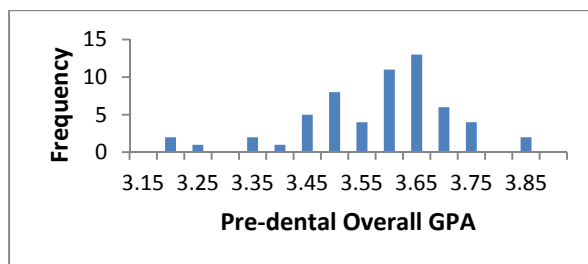


Figure 3. Pre-dental overall GPA averages for individual dental schools



The two Florida dental schools are compared with the weighted national averages in Table 5 to account for the number of students. The data in Table 5 suggest that Florida schools are able to attract students of above average quality based on these performance metrics.

Table 5. Florida dental school enrolled student quality measures, 2009-2010

2009-2010	DAT Academic Average	Pre-dental overall GPA
University of Florida College of Dentistry	19.0	3.50
NOVA Southeastern University College of Dental Medicine	19.0	3.64
National Average (weighted)	18.8	3.54

Table 4. Dental school enrolled student quality measures, 2009-2010

ST	DENTAL SCHOOL	Support	FYE	FL resident enrollment	DAT Academic Average	Pre-dental overall GPA
AL	UNIVERSITY OF ALABAMA	Public	55	1	20.0	3.69
AZ	A.T. STILL UNIVERSITY OF HEALTH SCIENCES ARIZONA	Private	67	1	17.8	3.37
AZ	MIDWESTERN UNIVERSITY	Private	112	5	18.5	3.48
CA	UNIVERSITY OF THE PACIFIC	Private	165	2	20.4	3.45
CA	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	Public	88	2	20.2	3.67
CA	UNIVERSITY OF CALIFORNIA, LOS ANGELES	Public	88	1	21.0	3.62
CA	UNIVERSITY OF SOUTHERN CALIFORNIA	Private	143	2	18.0	3.20
CA	LOMA LINDA UNIVERSITY	Private	100		18.8	3.42
CA	WESTERN UNIVERSITY OF HEALTH SCIENCES	Private	73	1	18.0	3.33
CO	UNIVERSITY OF COLORADO	Public	52			3.73
CT	UNIVERSITY OF CONNECTICUT	Public	42		19.7	3.62
DC	HOWARD UNIVERSITY	Private	80	6	17.0	3.24
FL	UNIVERSITY OF FLORIDA	Public	83	73	19.0	3.50
FL	NOVA SOUTHEASTERN UNIVERSITY	Private	108	55	19.0	3.64
GA	MEDICAL COLLEGE OF GEORGIA	Public	65	1	18.0	3.57
IL	SOUTHERN ILLINOIS UNIVERSITY	Public	53		18.6	3.66
IL	UNIVERSITY OF ILLINOIS, CHICAGO	Public	68		19.1	3.50
IN	INDIANA UNIVERSITY	Public	103	2	18.8	3.58
IA	UNIVERSITY OF IOWA	Public	81		19.0	3.74
KY	UNIVERSITY OF KENTUCKY	Public	57		18.7	3.54
KY	UNIVERSITY OF LOUISVILLE	Public	85	3	18.0	3.57
LA	LOUISIANA STATE UNIVERSITY	Public	65	3	19.1	3.62
MD	UNIVERSITY OF MARYLAND	Public	130	5	19.5	3.50
MA	HARVARD UNIVERSITY	Private	35	1	21.0	3.82
MA	BOSTON UNIVERSITY	Private	190	5	19.4	3.35
MA	TUFTS UNIVERSITY	Private	180	6	18.8	3.45
MI	UNIVERSITY OF DETROIT - MERCY	Private-State Related	88	2	19.0	3.61
MI	UNIVERSITY OF MICHIGAN	Public	105	2	19.3	3.52
MN	UNIVERSITY OF MINNESOTA	Public	98	1	19.6	3.67
MS	UNIVERSITY OF MISSISSIPPI	Public	37		18.1	3.71
MO	UNIVERSITY OF MISSOURI, KANSAS CITY	Public	102		18.0	3.62
NC	UNIVERSITY OF NORTH CAROLINA	Public	82		19.0	3.56
NE	CREIGHTON UNIVERSITY	Private	88		18.5	3.62
NE	UNIVERSITY OF NEBRASKA	Public	46	1	18.0	3.83
NV	UNIVERSITY OF NEVADA, LAS VEGAS	Public	80	6	19.0	3.56
NJ	U. OF MEDICINE & DENTISTRY OF NEW JERSEY	Public	95	7	19.4	3.45
NY	COLUMBIA UNIVERSITY	Private	80	7	21.7	3.50
NY	NEW YORK UNIVERSITY	Private	239		20.0	3.45
NY	STATE UNIVERSITY OF NEW YORK, STONY BROOK	Public	41	3	21.0	3.71
NY	STATE UNIVERSITY OF NEW YORK, BUFFALO	Public	92		19.4	3.61
OH	OHIO STATE UNIVERSITY	Public	106	2	19.2	3.65
OH	CASE SCHOOL OF DENTAL MEDICINE	Private	70	3	19.3	3.60
OK	UNIVERSITY OF OKLAHOMA	Public	58	1	19.0	3.64
OR	OREGON HEALTH & SCIENCE UNIVERSITY	Public	75		18.7	3.61
PA	TEMPLE UNIVERSITY	Private-State Related	128	9	19.3	3.46
PA	UNIVERSITY OF PENNSYLVANIA	Private	116	6	19.9	3.66
PA	UNIVERSITY OF PITTSBURGH	Private-State Related	80	4	19.4	3.65
SC	MEDICAL UNIVERSITY OF SOUTH CAROLINA	Public	58	3	18.2	3.59
TN	MEHARRY MEDICAL COLLEGE	Private	50	2	16.0	3.16
TN	UNIVERSITY OF TENNESSEE	Public	80	1	18.0	3.57
TX	TEXAS A&M UNIVERSITY - BAYLOR COLLEGE	Public	107		18.8	3.50
TX	UNIVERSITY OF TEXAS, HOUSTON	Public	83		19.2	3.61
TX	UNIVERSITY OF TEXAS, SAN ANTONIO	Public	100		19.0	3.66
VA	VIRGINIA COMMONWEALTH UNIVERSITY	Public	103	4	19.0	3.50
WA	UNIVERSITY OF WASHINGTON	Public	63		19.4	3.56
WV	WEST VIRGINIA UNIVERSITY	Public	50		17.0	3.56
WI	MARQUETTE UNIVERSITY	Private-State Related	80	4	18.0	3.57
PR	UNIVERSITY OF PUERTO RICO	Public	41		16.0	3.53
	TOTAL/AVERAGE		5,089	243	18.8	3.54

With respect to the dental schools' source of institutional support (public, private, and private-state related), Table 6 illustrates the respective performance measures.

Table 6. Dental school enrolled student quality measures, 2009-2010 by source of institutional support

2009-2010	DAT Academic Average	Pre-dental overall GPA
Public (weighted)	18.6	3.59
Private (weighted)	19.1	3.44
Private-State Related (weighted)	19.0	3.56
National Average (weighted)	18.8	3.54

The results in Table 6 are interesting. The public institutions score lowest on the DAT but highest on the GPA while private institutions are just the opposite, highest on the DAT and lowest on the GPA. The four private-state related institutions are in the middle on both measures. Although the proposed UCF College of Dental Medicine will operate more like a private or private-state related institution from a tuition perspective, there is no obvious general conclusion from the Table 6 data that would inform the decision process regarding the ability of UCF to attract high quality students.

What is known from the above analyses is that approximately 60 percent of the applicants to dental school are not admitted. In Florida, the two operating schools are able to attract above average students by at least one academic performance or readiness measure. If the students who matriculate (40 percent of applicants) are uniformly better than those who were not admitted to dental school, it is still likely that the next 10 percent (i.e., 1,200 applicants) will be relatively well-qualified. The next 100 best-qualified applicants below the admission threshold will still be very qualified and expected to have performance measures near the national averages. It is likely that the current performance of the Florida schools (Table 5) and the quality reputation of the university will provide a sufficient draw for these quality students.

FINANCIAL CONSIDERATIONS--TUITION

As indicated in the introduction, for programs in private institutions, tuition is generally set at levels that will cover the cost of instruction after accounting for contributions for other sources such as foundation, clinical practice, and research. For public institutions, there is usually a non-resident fee above the tuition level or a separate non-resident tuition that is intended to cover the cost of instruction. Because this proposal requires no new state appropriations for its operations, this model requires the tuition levels to be set at market rates sufficient to provide the needed financial support. Therefore, the appropriate reference point for examining tuition for the proposed UCF College of Dental Medicine is the non-resident tuition at other dental schools. Table 7 includes the relevant data.

The variability in the non-resident tuition is illustrated in Figure 4. The value ranges from a low of \$16,991 (University of Puerto Rico) to a high of \$76,832 (University of the Pacific). The proposal for the UCF College of Dental Medicine specifically anticipates a tuition level of \$55,675 per year for class starting in 2014. Using the tuition escalation factor of 3 percent that is used in the proposal, this starting tuition is equivalent to a first-year tuition of \$48,025 in 2009, the base year for comparison in this analysis. This tuition level is indicated in Figure 4 along with the 2009-2010 tuition levels for the University of Florida College of Dentistry (\$51,004) and NOVA Southeastern University College of Dental Medicine (\$48,950).

Figure 4. Dental school non-resident tuition, 2009-2010

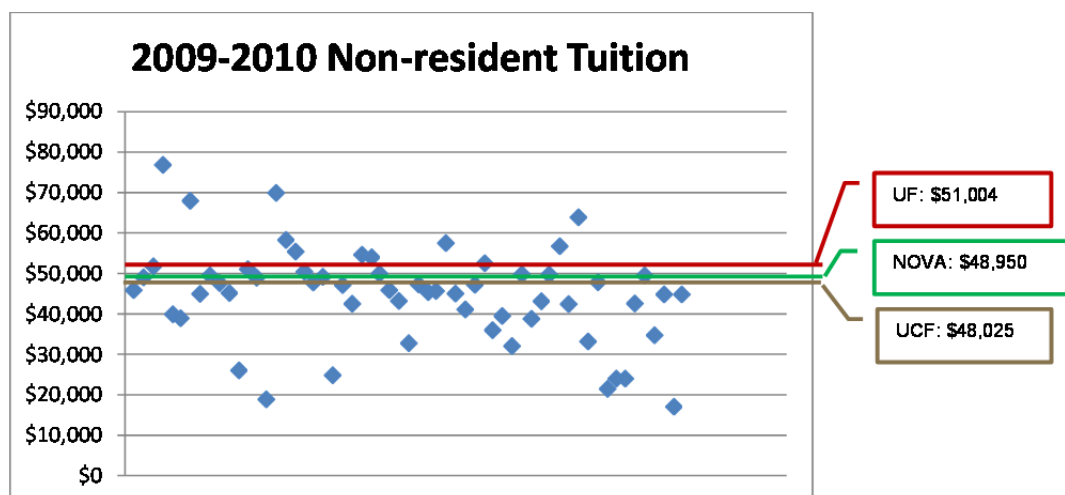


Table 7. Dental school non-resident tuition, 2009-2010

ST	DENTAL SCHOOL	Support	Non-resident tuition
AL	UNIVERSITY OF ALABAMA	Public	45,804
AZ	A.T. STILL UNIVERSITY OF HEALTH SCIENCES ARIZONA	Private	49,000
AZ	MIDWESTERN UNIVERSITY	Private	51,693
CA	UNIVERSITY OF THE PACIFIC	Private	76,832
CA	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	Public	39,863
CA	UNIVERSITY OF CALIFORNIA, LOS ANGELES	Public	38,886
CA	UNIVERSITY OF SOUTHERN CALIFORNIA	Private	67,890
CA	LOMA LINDA UNIVERSITY	Private	44,930
CA	WESTERN UNIVERSITY OF HEALTH SCIENCES	Private	49,500
CO	UNIVERSITY OF COLORADO	Public	47,594
CT	UNIVERSITY OF CONNECTICUT	Public	45,120
DC	HOWARD UNIVERSITY	Private	26,000
FL	UNIVERSITY OF FLORIDA	Public	51,004
FL	NOVA SOUTHEASTERN UNIVERSITY	Private	48,950
GA	MEDICAL COLLEGE OF GEORGIA	Public	18,861
IL	SOUTHERN ILLINOIS UNIVERSITY	Public	69,852
IL	UNIVERSITY OF ILLINOIS, CHICAGO	Public	58,252
IN	INDIANA UNIVERSITY	Public	55,350
IA	UNIVERSITY OF IOWA	Public	50,397
KY	UNIVERSITY OF KENTUCKY	Public	47,699
KY	UNIVERSITY OF LOUISVILLE	Public	49,100
LA	LOUISIANA STATE UNIVERSITY	Public	24,795
MD	UNIVERSITY OF MARYLAND	Public	47,108
MA	HARVARD UNIVERSITY	Private	42,500
MA	BOSTON UNIVERSITY	Private	54,590
MA	TUFTS UNIVERSITY	Private	54,000
MI	UNIVERSITY OF DETROIT - MERCY	Private-State Related	49,910
MI	UNIVERSITY OF MICHIGAN	Public	45,824
MN	UNIVERSITY OF MINNESOTA	Public	43,162
MS	UNIVERSITY OF MISSISSIPPI	Public	32,690
MO	UNIVERSITY OF MISSOURI, KANSAS CITY	Public	47,213
NC	UNIVERSITY OF NORTH CAROLINA	Public	45,373
NE	CREIGHTON UNIVERSITY	Private	45,644
NE	UNIVERSITY OF NEBRASKA	Public	57,472
NV	UNIVERSITY OF NEVADA, LAS VEGAS	Public	45,000
NJ	U. OF MEDICINE & DENTISTRY OF NEW JERSEY	Public	41,039
NY	COLUMBIA UNIVERSITY	Private	47,132
NY	NEW YORK UNIVERSITY	Private	52,510
NY	STATE UNIVERSITY OF NEW YORK, STONY BROOK	Public	35,960
NY	STATE UNIVERSITY OF NEW YORK, BUFFALO	Public	39,420
OH	OHIO STATE UNIVERSITY	Public	32,040
OH	CASE SCHOOL OF DENTAL MEDICINE	Private	49,780
OK	UNIVERSITY OF OKLAHOMA	Public	38,778
OR	OREGON HEALTH & SCIENCE UNIVERSITY	Public	43,116
PA	TEMPLE UNIVERSITY	Private-State Related	49,714
PA	UNIVERSITY OF PENNSYLVANIA	Private	56,690
PA	UNIVERSITY OF PITTSBURGH	Private-State Related	42,412
SC	MEDICAL UNIVERSITY OF SOUTH CAROLINA	Public	63,831
TN	MEHARRY MEDICAL COLLEGE	Private	33,120
TN	UNIVERSITY OF TENNESSEE	Public	47,810
TX	TEXAS A&M UNIVERSITY - BAYLOR COLLEGE	Public	21,420
TX	UNIVERSITY OF TEXAS, HOUSTON	Public	23,925
TX	UNIVERSITY OF TEXAS, SAN ANTONIO	Public	23,925
VA	VIRGINIA COMMONWEALTH UNIVERSITY	Public	42,556
WA	UNIVERSITY OF WASHINGTON	Public	49,470
WV	WEST VIRGINIA UNIVERSITY	Public	34,667
WI	MARQUETTE UNIVERSITY	Private-State Related	44,800
PR	UNIVERSITY OF PUERTO RICO	Public	16,991
	AVERAGE		44,810

Table 8 includes additional data with respect to non-resident tuition summarized by the source of institutional support. With the available data in the ADA Survey Report, there is no way to identify how many applications received by a given dental school were received from non-resident students. In that data source, those residency data are only available for enrolled students. Table 8 provides some insights. In terms of applications, on average, private and private-state related schools receive more than twice as many applications as public schools. The public schools have nearly one-quarter of their enrolled students as non-

residents while private and private-state related schools together have more than half of their enrolled students as non-residents. The non-resident tuition is lowest for public institutions and highest for private institutions. It should be noted that some private institutions offer a lower resident tuition, but the difference is nowhere near as large as for public institutions.

Table 8. Dental school non-resident tuition, 2009-2010 by source of institutional support

Support	Average applications received per school	Average non-resident enrollment	% Non-resident enrollment	Average non-resident tuition
Public	1,342	18.2	23.9%	\$42,199
Private	2,911	69.6	62.4%	\$50,045
Private-State related	2,917	44.0	46.8%	\$46,709
National Average	1,910	35.0	39.9%	\$44,810

As shown in Table 9, both the University of Florida and the University of Central Florida tuition levels are above the national average for public institutions while the NOVA Southeastern University non-resident tuition is below the national average for private institutions. Note that the UCF proposed tuition level, however, is below the national average for private institutions.

Table 9. Florida dental school non-resident tuition, 2009-2010

Support	Average non-resident tuition	University of Florida	NOVA Southeastern University	University of Central Florida (equivalent)
Public	\$42,199	\$51,004		\$48,025
Private	\$50,045		\$48,950	
Private-State related	\$46,709			
National Average	\$44,810			

Based on their school selection, the 115 Florida residents who are attending an out-of-state dental school are currently paying an average of \$46,475 in non-resident tuition. The 73 Florida residents attending the University of Florida(\$24,524) and the 55 Florida residents attending NOVA Southeastern University (\$46,150) pay an average of \$33,816 for first-year residential tuition. This will increase significantly since the University of Florida increased its resident tuition by more than 26 percent to \$30,936 for 2010-2011.

Of the 5,089 first year enrolled students in fall 2009, 1,690 students were paying tuition at or above the fall 2009 UCF College of Dental Medicine equivalent tuition of \$48,025. This represents over 33 percent of all newly enrolled dental students paying tuition above the proposed UCF market rate. Moreover, in Florida's two dental schools, 49 percent of the students pay tuition greater than the proposed UCF rate. This further supports the notion that there is a substantial pool of applicants willing to pay at this market rate. As described below, the UCF escalation rate of 3 percent is below the recently experienced increases in Florida that will result in the UCF rate being more competitive.

It should also be noted that this analysis is based on the 2009-2010 tuition levels. It is interesting to observe that the University of Florida College of Dentistry with a non-resident tuition of \$51,004 in 2009-2010 raised its non-resident tuition more than 12 percent in 2010-2011 to \$57,416. The NOVA Southeastern College of Dental Medicine increased its non-resident tuition approximately 4.1 percent from \$48,950 to \$50,940 for 2010-2011. The comparable 2010-2011 proposed tuition for UCF College of Dental Medicine would be \$49,466. The published tuition for the LECOM School of Dental Medicine for 2012-2013 is \$48,000.

The willingness of Florida residents to pay a relatively high tuition (115 at out-of-state schools and 55 at NOVA) and the large number of non-resident applicants to existing dental schools strongly suggest that the proposed UCF College of Dental Medicine will be able to attract well qualified applicants who are willing pay market-rate tuition.

CONCLUSIONS

Three basic questions are addressed in this analysis:

- Is the private market-rate model proposed for the UCF College of Dental Medicine a viable financial model to support the dental education program?
- Is there a “supply” of high quality students available to attend a new program?
- Would students be willing to pay the proposed level of tuition to attend the dental program?

Based on the evidence presented above, the answer to all three questions is YES.

Of the 12,202 individuals who applied for dental school for the 2009-2010 academic year, 5,089 (41.7 percent) were enrolled. There is a significant unmet need by prospective dental students for admission to a dental program, including over 400 Florida residents who were not admitted to a dental school.

The enrolled students generally displayed a high performance level on the Dental Admission Test (DAT) and their undergraduate GPAs. This performance is associated with 40 percent of the applicants. If these are the highest performers, it is likely that the next 10 percent will be relatively good performers as well with performance levels near the mean of those who were admitted to existing programs. These applicants represent a well-qualified pool. Existing Florida dental schools have been able to attract high quality students and it is expected that UCF, with its high quality reputation, would be attractive to those students.

Florida has 243 residents newly enrolled in a U.S. dental school in 2009-2010. A total of 128 are enrolled in Florida schools and 115 in out-of-state dental schools. Those Florida residents attending out-of-state schools pay an average tuition of \$46,475. The proposed tuition for the UCF College of Dental Medicine of \$48,025 (2009-2010 dollars) compares favorably with this level, and is also below the NOVA non-resident tuition of \$48,950 and the UF non-resident tuition of \$51,004. Almost 45 percent of the newly enrolled students attend private or private-state related dental schools with average non-resident tuitions of \$50,045 and \$46,709, respectively.

Of the 5,089 first year enrolled students in fall 2009, 1,690 students were paying tuition at or above the fall 2009 UCF College of Dental Medicine equivalent tuition of \$48,025. This represents over 33 percent of all newly enrolled dental students paying tuition above the proposed UCF market rate. Moreover, in Florida’s two dental schools, 49 percent of the students pay tuition greater than the proposed UCF rate. In addition, the UCF escalation rate of 3 percent is below the recently experienced increases in Florida that will result in the UCF rate being more competitive.

The data strongly suggest that there is an unmet need of high quality students who have the capacity and willingness to pay market-rate tuition. There is nothing in the data to suggest that the proposed UCF market-rate model is not viable.

REFERENCES

- American Dental Association, *2009-2010 Survey of Dental Education, Academic Programs, Enrollment, and Graduates, Volume 1*, Chicago, IL, 2011.
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Appendix H

Competencies to be Acquired by Graduates of the University of Central Florida College of Dental Medicine

The educational mission of the University of Central Florida Doctor of Dental Medicine degree program is to educate general dentists who can serve the oral health care needs of the public, advance the dental profession through service, scholarship and leadership, and enhance the oral health knowledge and capabilities of the communities in which our graduates practice.

Competency-Based Education

The D.M.D. program curriculum is competency-based. The predoctoral dental education standards of the Commission on Dental Accreditation and the “Competencies for the New General Dentist” adopted by the ADEA House of Delegates in April 2008 both endorse *competency-based education* as the model for the predoctoral curriculum, and both identify a “*general dental practitioner*” as the expected educational outcome of dental school. In the competency-based curriculum at the USNCDM, *what* students learn is based on competencies that the faculty deem to be essential for successful, independent and unsupervised performance as an entry-level general dental practitioner.

The D.M.D. program definition of competency is:

The knowledge, values, and skills needed to make the transition from providing patient care under supervision of faculty to the independent practice of general dentistry.

To demonstrate readiness for entry into professional practice, D.M.D. program students must demonstrate that they can accomplish the competencies described in this document which indicate the knowledge, values and skills that new graduates need in order to begin their professional roles in society. It is recognized that these competencies represent only a starting point for the dentist’s life-long professional journey – a journey which must include ongoing developmental activity to enhance, refine and maintain patient care skills, and to develop new capabilities needed to serve the evolving oral health needs of the public.

Format for Competency Statements

D.M.D. program competencies are presented in the **C-E-O format** which includes a broadly-stated competency domain (**C**) followed by specific educational outcomes (**EO**) that are formally assessed during the curriculum. Each competency domain is a general description of an essential patient care skill or professional role that the entry-level general dentist must be able to perform unassisted and unsupervised. Educational outcomes are statements listed below each competency that identify the knowledge, technical skills, patient management skills, communication skills and professional and ethical behaviors that students must perform to demonstrate competency. The educational outcomes are indicators of the student’s capacity to attain the overall competency.

The competencies apply to the assessment, management and treatment of dental patients at all life-stages: infant, child, adolescent, adult and the elderly and also apply to individuals with special needs.

Glossary of Terms Used in the Competencies

Critical thinking: the process of assimilating and analyzing information; this encompasses an interest in finding new solutions, a curiosity with an ability to admit to a lack of understanding, a willingness to examine beliefs and assumptions and to search for evidence to support these beliefs and assumptions, and the ability to distinguish between fact and opinion.

Domain: a broad, critical category of activity for the general dentist.

Emerging technologies: current and future technologies used in patient care including technologies for biomedical information storage and retrieval, clinical care information, and technologies for use at the point of care.

Evidence-based dentistry: an approach to oral health care that requires the judicious integration of systematic assessments of clinically relevant scientific evidence relating to the patient's oral and medical condition and history integrated with the dentist's clinical expertise and the patient's treatment needs and preferences.

Foundation knowledge and skills: the basic and essential knowledge and skills linked to and necessary to support a given competency.

General dentist: the primary dental care provider for patients in all age groups who is responsible for the diagnosis, treatment, management, and overall coordination of services related to patients' oral health needs.

Health promotion: public health actions to protect or improve oral health and promote patients' wellbeing through behavioral, educational and enabling socio-economic, legal, fiscal, environmental, and social measures; it involves the process of enabling individuals and communities to increase control over the determinants of health and thereby improve their health; includes education of the public to prevent chronic oral disease.

Informatics: applications associated with information and technology used in health care delivery; the data and knowledge needed for problem solving and decision making and the administration and management of information and technology in support of patient care, education, and research.

Interprofessional health care: the delivery of health care by a variety of health care practitioners in a cooperative, collaborative, and integrative manner to ensure care is continuous and reliable.

Management / manage: the words "management" and "manage" include all actions performed by a health care provider that are designed to alter the course of a patient's condition; such actions may include providing education, advice, treatment by the general dentist, treatment by the general dentist after consultation with another health care professional, referral of a patient to another health care professional, monitoring treatment provided, and may also include providing no treatment or observation.

Patient-centered care: the ability to identify, respect, and care about patients' differences, values, preferences, and expressed needs; relieve pain and suffering; coordinate continuous care; listen to, clearly inform, communicate with, and educate patients; share decision-

making and management; and continuously advocate disease prevention, wellness, and promotion of healthy life styles, including a focus on population health.

Problem-solving: the process of answering a question or achieving a goal when the path or answer is not immediately obvious using an acceptable heuristic or strategy such as the scientific method.

Special needs care: an approach to oral health management tailored to the individual needs of people with a variety of medical conditions or physical and mental limitations that require more than routine delivery of oral care; special care encompasses preventive, diagnostic and treatment services.

*Use of the word “appropriate”: the term “appropriate” is **not** used in these competency statements to eliminate repetition. It is assumed that knowledge, skills, and values will be used to perform procedures for appropriate reasons, in appropriate circumstances, and in a manner that adheres to contemporary standards of dental practice and professional demeanor.*

Working diagnosis: refers to the most likely preoperative diagnosis, prior to confirmation by more advanced diagnostic studies or therapeutic outcomes, for a patient’s health care abnormalities. A working, or presumptive, diagnosis is determined by analysis of several potential diagnostic options (referred to as the differential diagnosis) based on diagnostic information and the dentist’s assessment of symptoms and clinical presentation.

Linkage to CODA Educational Program Standards

The linkage of D.M.D. program competencies and associated educational outcomes to CODA education program (curriculum) standards is displayed in the table on pages 16-17 of this document.

D.M.D. program Predoctoral Dental Education Competencies

All competencies and educational outcomes apply to the management of the oral health care of the infant, child, adolescent, and adult, as well as the unique needs of women, geriatric and special needs patients.

Domain 1: Ethical Reasoning and Professional Responsibility

Competency: Graduates will use principles of ethical reasoning and professional behavior during their interactions with patients, other health care providers and the public.

Educational Outcomes:

- 01 Demonstrate the characteristics and responsibilities of a dental professional.
- 02 Demonstrate understanding of the ethical and professional responsibilities that dentists have to patients, employees, members of the community, and other health care providers.
- 03 Recognize and deal with ethical issues/dilemmas by applying the principles of ethical reasoning and professional responsibility.

- 04 Demonstrate professional behaviors when interacting with patients, employees, members of the community, and other health care providers.
- 05 Demonstrate understanding of ethical standards for conducting biomedical research.

Domain 2: Critical Appraisal

Competency: Graduates will use critical appraisal during patient care.

Educational Outcomes:

- 01 Retrospectively and prospectively critique patient care in order to analyze and/or propose clinical decisions, describe rationale for treatment strategies, and evaluate a range of outcomes from optimal to undesirable.
- 02 Explore uncertainties in diagnostic and/or treatment approaches by identifying questions, locating and appraising best available evidence and implementing patient therapy based on this appraisal.
- 03 Apply a critical appraisal process to analyze diagnostic and therapeutic reports in literature, continuing education programs and advertisements.
- 04 Critically appraise and apply contemporary and emerging information including clinical and practice management technology resources.

Domain 3: Self-Assessment

Competency: Graduates will be able to self-assess quality of patient care, identify learning needs and identify strategies for enhancement of professional performance.

Educational Outcomes:

- 01 Assess personal progress toward overall readiness for independent dental practice and individual competencies.
- 02 Identify personal learning needs and create objectives and plans to address these needs.
- 03 Self-assess the strengths and weaknesses of patient care provided and identify strategies for improvement.
- 04 Assess, diagnose and treat patients only within one's competence.

Domain 4: Biomedical Sciences

Competency: Graduates will be able to apply biomedical science knowledge and principles for the management of patients.

Educational Outcomes:

- 01 Demonstrate comprehension of the structure, function and pathology of cells,

- tissues, organs and organ systems, and apply this knowledge during management of patients.
- 02 Recognize diseases in the following categories, and explain clinical presentation, pathophysiology and implications for dental treatment:
- a. diseases unique to the head, neck and oral cavity;
 - b. systemic diseases with oral manifestations; and,
 - c. systemic diseases without oral manifestations, but often present in dental patients.

Domain 5: Patient Assessment and Diagnosis

Competency: Graduates will be able to assess the health care status of patients across the age spectrum from child to elderly, including individuals with special needs*, and develop a diagnosis for identified abnormalities and problems.

Educational Outcomes:

- 01 Establish and maintain rapport and communication with the patient.
- 02 Perform a complete patient interview consisting of:
- description of patient's chief complaint / reason for current dental appointment,
 - oral health history and history of dental treatment,
 - medical history, including a review of systems and current and/or chronic health problems actively managed by a physician or other health care provider,
 - names of primary care physician, other physicians and dentists the patient sees routinely,
 - medication history including inventory of current prescriptions, drug allergies and adverse drug reactions, and,
 - family and social history.
- 03 Identify the presence of systemic disease with oral manifestations or implications for dental care, and manage dental treatment of these patients.
- 04 Conduct head and neck examinations, including assessment for head and neck cancer.
- 05 Perform intraoral examinations of the hard and soft tissues of the mouth.
- 06 Prescribe or perform radiographic, clinical, laboratory and other diagnostic procedures and interpret their findings or reports.
- 07 Demonstrate awareness of the diagnostic benefits of radiographic procedures, the

risks of radiation exposure, and patient selection criteria when prescribing radiographs.

- 08 Interpret findings from patient interview and examination and present them clearly to supervising dental faculty in a standardized format.
- 09 Recognize the normal range of clinical findings and establish a working diagnosis for findings that require treatment or represent a significant deviation from normal.
- 10 Initiate medical or dental consultation or referral when appropriate and revise the working diagnosis as indicated based on information derived from consultants.

* Special needs patients are “those patients whose medical, physical, psychological, or social situations make it necessary to modify normal dental routines in order to provide dental treatment for that individual. These individuals include, but are not limited to, people with developmental disabilities, complex medical problems, and significant physical limitations.” *Commission on Dental Accreditation. Accreditation Standards for Dental Education Programs. Chicago: American Dental Association, 2007.*

Domain 6: Treatment Planning and Outcomes Assessment

Competency: Graduates will be able to develop treatment plans to address oral health care problems of patients across the age spectrum from infant to elderly including individuals with special needs, and assess the outcomes of treatment.

Educational Outcomes:

- 01 Plan oral health care for patients across the age spectrum: infant, child, adolescent, adult, and the elderly, and for individuals with special needs.
- 02 Determine and consider patient’s dental, medical and personal situation in evaluating the range of oral health care strategies appropriate for that individual.
- 03 Develop an individualized plan of treatment based on patient assessment, evaluation of diagnostic data, scientific evidence and patient preferences.
- 04 Discuss findings, diagnosis, treatment alternatives, and the risks and benefits of each therapy with patients, their caregivers or legal representative to insure a sufficient understanding for informed patient consent to treatment.
- 05 Evaluate outcomes of treatment on an ongoing basis, including use of a patient recall system, and modify treatment plans based on changing circumstances.

Domain 7: Promotion of Patients’ Oral Health

Competency: Graduates will be able to provide counseling and education to promote patients’ oral health.

Educational Outcomes:

- 01 Counsel patients on lifestyle habits that affect oral health.
- 02 Provide behavioral counseling, anticipatory guidance and preventive therapies to reduce the extent and severity of oral diseases and risk factors.
- 03 Provide dietary counseling and nutritional education relevant to oral health and specific to each patient's dietary history and health habits.
- 04 Evaluate outcomes of preventive interventions.
- 05 Involve caregivers, guardians, and other health and social service professionals in managing the oral health of patients.
- 06 Recognize the roles and responsibilities of dentists and other health professionals in the prevention of oral diseases and improvement of oral health in the community.

Domain 8: Psychosocial and Behavioral Principles of Patient Care

Competency: Graduates will be able to apply psychosocial and behavioral principles for promoting, improving, and maintaining patients' oral health.

Educational Outcomes:

- 01 Demonstrate caring and respectful behaviors when interacting with patients and families.
- 02 Use interpersonal skills and communication strategies that result in effective information exchange with patients.
- 04 Involve patients in decision-making and respond to their preferences, needs, and values.
- 05 Incorporate cultural, social, and behavioral factors that influence oral health practices and beliefs when developing treatment plans in collaboration with patients.

Domain 9: Patient's Anxiety and Pain

Competency: Graduates will be able to manage patients' anxiety and pain.

Educational Outcomes:

- 01 Apply behavioral and/or pharmacological methods in caring for patients with fear and anxiety, and refer those patients requiring special expertise.
- 02 Prescribe medications commonly used in dentistry and inform patients of reasons for use and possible side effects.
- 03 Provide safe and effective local anesthesia.
- 04 Provide safe and effective inhalation sedation.

- 05 Recognize and manage pain and other complications related to use of analgesics, local anesthesia and inhalation sedation techniques.
- 06 Recognize pain associated with dental trauma and temporomandibular disorders.

Domain 10: Medical Emergencies

Competency: Graduates will be able to prevent, recognize, and manage medical emergencies that occur in the dental setting.

Educational Outcomes:

- 01 Assess the patient's risk for medical emergencies or complications from dental treatment by evaluating medical history and monitoring patient's symptoms.
- 02 Modify a patient's dental treatment plan based on assessment of medical risks.
- 03 Recognize when a medical emergency is occurring and identify the nature of the problem.
- 04 Provide health care provider-level basic life support.
- 05 Manage the transfer of the patient to a higher level of care when indicated.
- 06 Maintain certification in basic life support.

Domain 11: Dentofacial Growth and Development

Competency: Graduates will be able to recognize and manage malalignment and malocclusion in the deciduous, mixed, and permanent dentition.

Educational Outcomes:

- 01 Evaluate the patient's dentofacial complex and occlusion, and develop a working diagnosis.
- 02 Recognize abnormal dentofacial growth and development that may create dental mal-alignment or malocclusion.
- 03 Recognize the need for space maintenance to retain interdental space and tooth positions.
- 04 Recognize and manage orthodontic therapy when needed to facilitate restorative treatment.
- 05 Evaluate the patient's scheme of occlusal contacts and diagnose malocclusion.
- 06 Perform a diagnostic mounting of casts of the patient's dentition.
- 07 Create a plan to treat malocclusion and provide or manage that care.

Domain 12: Periodontal and Peri-implant Disease

Competency: Graduates will be able to manage periodontal and peri-implant disease.

Educational Outcomes:

- 01 Evaluate the patient's periodontium and peri-implant tissues, develop a diagnosis, identify treatment options and their prognoses, and formulate a treatment plan that best meets the needs and desires of the patient.
- 02 Perform initial periodontal therapy including dental prophylaxis and scaling and root planing.
- 03 Evaluate the outcomes of initial periodontal therapy, reassess the diagnosis and prognosis, determine the need for additional periodontal treatment, and manage follow-up treatment.
- 04 Recognize the need for periodontal and peri-implant surgery and manage surgical care.
- 05 Devise and manage programs to maintain patient's periodontal and peri-implant health.
- 06 Recognize and manage periodontal manifestations of systemic disease.

Domain 13: Treatment of Dental Caries

Competency: Graduates will be able to diagnose and treat dental caries, including the restoration of defective teeth to re-establish form, function, and esthetics.

Educational Outcomes:

- 01 Evaluate the patient's teeth and supporting structures, develop a diagnosis, identify treatment options and their prognoses, and formulate a plan of treatment that best meets the needs and desires of the patient.
- 02 Provide non-surgical treatment of non-cavitated carious lesions.
- 03 When non-surgical treatment is not an option, restore teeth to re-establish form, function, and esthetics.
- 04 Communicate with dental laboratory technicians and evaluate laboratory products.
- 05 Evaluate and manage the outcomes of treatment.

Domain 14: Replacement of Missing Teeth

Competency: Graduates will be able to replace patients' missing teeth with fixed, removable, and implant supported prostheses to restore form, function and esthetics.

Educational Outcomes:

- 01 Evaluate the patient's edentulous areas, supporting and limiting anatomical structures, develop a diagnosis, identify treatment options and their prognoses, and formulate a treatment plan that best meets the needs and desires of the patient.
- 02 Treat patients who have missing teeth with fixed, removable, and implant-supported prostheses.
- 03 Communicate with dental laboratory technicians and evaluate laboratory outcomes.
- 04 Evaluate outcomes of treatment and manage the maintenance of dental prostheses.

Domain 15: Pulpal and Periapical Disorders

Competency: Graduates will be able to manage pulpal and periapical diseases.

Educational Outcomes:

- 01 Evaluate the patient's pulpal and periapical tissues, develop a diagnosis, identify treatment options and their prognoses, and formulate a treatment plan that best meets the needs and desires of the patient.
- 02 Prevent and manage pulpal inflammation and manage periapical disease.
- 03 Perform endodontic therapy on permanent teeth within scope of practice of general dentistry.
- 04 Evaluate treatment outcomes and recognize need for re-treatment or endodontic surgery.

Domain 16: Oral Surgery

Competency: Graduates will be able to perform oral surgical procedures within the scope of practice of a general dentist.

Educational Outcomes:

- 01 Assess the patient's oral hard and soft tissue, identify problems needing treatment, identify treatment options and their prognoses, develop a diagnosis, and formulate a treatment plan that meets patient's needs and desires.
- 02 Recognize and treat oral bony and oral mucosal abnormalities and refer complex disorders in both categories.
- 03 Perform oral surgical procedures and manage complications.
- 04 Identify and manage patients requiring specialty care.

Domain 17: Dental Emergencies

Competency: Graduates will be able to manage dental emergencies.

Educational Outcomes:

- 01 Diagnose and manage dental emergencies including pain, swelling, fever, suppurative, bleeding, trauma and loss of function.
- 02 Recognize intraoral dental emergencies requiring rapid referral for emergency medical treatment or referral to an oral surgeon such as extensive jaw or dentition trauma, extensive tissue laceration, uncontrollable bleeding, swelling of the throat that impairs breathing or swallowing.

Domain 18: Dental Practice and Oral Health Care Delivery

Competency: Graduates will be able to prepare a business plan for a dental practice and demonstrate comprehension of models of oral health care delivery and financing.

Educational Outcomes:

- 01 Apply business, financial and human resource management principles in the development of a business plan for a dental practice.
- 02 Assess the impact of demographic, social, and economic trends on oral health status of the public and dental practice.
- 03 Demonstrate comprehension of the models of oral health care delivery and financing that are implemented in various environments to meet the needs of individual patients and the community.
- 04 Demonstrate comprehension of access to care, health care reform, health workforce issues, and mechanisms for financing health and oral health services.

Domain 19: Dental Practice Laws, Codes, Standards and Policies

Competency: Graduates will be able to apply laws, codes, standards and policies that govern dental practice and the provision of oral health care.

Educational Outcomes:

- 01 Comply with federal, state and local laws and regulations that pertain to the practice of dentistry and provision of oral health services including OSHA and HIPAA.
- 02 Interpret and apply codes, standards, and procedures that pertain to the practice or business administration of dentistry.
- 03 Evaluate and apply evidence-based guidelines for the practice of dentistry that promotes, improves and maintains oral health.
- 04 Demonstrate comprehension of health policies that affect the oral and systemic health of individuals and communities.

Domain 20: Health Care Team

Competency: Graduates will be able to function as a leader of a primary care health team and collaborate with other health care providers.

Educational Outcomes:

- 01 Collaborate and communicate with oral health care team members in a multicultural work environment.
- 02 Demonstrate comprehension of the roles of other health care professionals and demonstrate the skills to interact with them in providing adequate consultations, referrals, and follow-up care.
- 03 Participate with oral health care team members and other health care professionals in the coordination of care and promotion of health with patients.
- 04 Demonstrate comprehension of the dentist's responsibility as a health professional, service provider, and member of the community.
- 05 Demonstrate capacity to function productively in collaborative teams for learning and delivery of patient care during dental school.

Linkage of CODA Predoctoral Education Standards 2-12 through 2- 27 to D.M.D. program Competency Domains

CODA Educational (Curriculum) Standards	D.M.D. program Competency Domains and Educational Outcomes
2-12: Biomedical science instruction must ensure an in-depth understanding of basic biological principles, consisting of a core of information on the fundamental structures, functions and interrelationships of the body systems.	4-01
2-13: The biomedical knowledge base must emphasize the oro-facial complex as an important anatomical area existing in a complex biological interrelationship with the entire body.	4-02, 11-01, 11-02 5-03, 6-03
2-14: In-depth information on abnormal biological conditions must be provided to support a high level of understanding of the etiology, epidemiology, differential diagnosis, pathogenesis, prevention, treatment and prognosis of oral and oral-related disorders.	4-02 5-03, 5-04, 5-05 10-01, 17-01, 17-02
2-15: Biomedical science knowledge must be of sufficient depth and scope for graduates to apply advances in modern biology to clinical practice and to integrate new medical knowledge and therapies relevant to oral health care.	4-01, 4-02 9-01, 9-02, 9-03, 9-04, 9-05, 9-06 15-02, 16-01, 16-02
2-16: Graduates must be competent in the application of the fundamental principles of behavioral sciences as they pertain to patient-centered approaches for promoting, improving and maintaining oral health.	5, 6, 7, 8, 9, 20
2-17: Graduates must be competent in managing a diverse patient population and have the interpersonal and communications skills to function successfully in a multicultural work environment.	6, 7, 8, 18, 20
2-18: Graduates must be competent in evaluating different models of oral health care management and delivery.	18-03, 18-04
2-19: Graduates must understand the basic principles and philosophies of practice management and have the skills to function successfully as the leader of the oral health care team.	18, 19, 20
2-20: Graduates must be competent in applying ethical, legal and regulatory concepts to the provision and/or support of oral health care services.	1, 19
2-21: Graduates must be competent in the application of the principles of ethical reasoning and professional responsibility as they pertain to patient care and practice management.	1, 19
2-22: Graduates must recognize the role of lifelong learning and self-assessment in maintaining competency.	2, 3
2-23: Graduates must be competent in the use of critical thinking and problem solving related to the comprehensive care of patients.	2, 3

2-24: Graduates must be competent in the use of information technology resources in contemporary dental practice.	2-04
2-25: At a minimum, graduates must be competent in providing oral health care within the scope of general dentistry, as defined by the school, for the child, adolescent, adult, and geriatric patient, including:	
2-25a: Patient assessment and diagnosis	5, 11-01, 12-01, 13-01, 14-01, 15-01, 16-01
2-25b: Comprehensive treatment planning	6, 11-01, 12-01, 13-01, 14-01, 15-01, 16-01
2-25c: Health promotion and disease prevention	7
2-25d: Informed consent	6-04
2-25e: Anesthesia, and pain and anxiety control	9
2-25f: Restoration of teeth	13
2-25g: Replacement of teeth	14
2-25h: Periodontal therapy	12
2-25i: Pulpal therapy	15
2-25j: Oral mucosal disorders	16 - 02
2-25k: Hard and soft tissue surgery	16 - 03
2-25l: Dental emergencies	17
2-25m: Malocclusion and space maintenance	11
2-25n: Evaluation of the outcomes of treatment.	6-05, 12-03, 13-05, 14-04, 15-04
2-26: Graduates must be competent in assessing the treatment needs of patients with special needs.	5, 6
2-27: Graduates must be competent in providing appropriate life support measures for medical emergencies that may be encountered in dental practice.	10