CONSIDERATION OF A REQUEST TO ESTABLISH A PROCESS OF ACCREDITATION FOR ADVANCED DENTAL EDUCATION PROGRAMS IN OPERATIVE DENTISTRY, CARIOLOGY AND BIOMATERIALS

Background: On June 14, 2024 the Commission on Dental Accreditation (CODA) received correspondence from Dr. Gordon Jones on behalf of the Academy of Operative Dentistry (AOD), requesting that the Commission establish a process of accreditation for advanced dental education programs in operative dentistry, cariology and biomaterials (**Appendix 1**).

At the Summer 2024 meeting, the Commission considered the AOD request and noted the Commission's *Policies and Procedures for Accreditation of Programs in A New Dental Education Area or Discipline* **(Appendix 2)** provides a framework for the Commission in determining whether a process should be initiated for programs in a new dental education area or discipline.

Accordingly, the Commission directed that an Ad Hoc Committee composed of Commission members be appointed to further study the request in accordance with the Commission's *Policies and Procedures for Accreditation of Programs in A New Dental Education Area or Discipline*, with a report on the Ad Hoc Committee's progress at the Winter 2025 meeting of the Commission.

January 14, 2025 Virtual Meeting: The Ad Hoc Committee conducted a virtual meeting to consider the request submitted by the Academy of Operative Dentistry (AOD). The Ad Hoc Committee included: Dr. Jessica Lee (chair), Dr. Evanthia Anadioti, Dr. George Kushner, Dr. Keith Mays, Dr. Lisa Nowlin, Dr. Cornelius Pitts, Dr. Miriam Robbins, and Dr. Nancy Rosenthal. Dr. Nancy Rosenthal was unable to participate in the meeting. Drs. Lisa Nowlin and Cornelius Pitts attended a portion of the meeting. Commissioners: Dr. Frank Licari, chair, and Dr. Cataldo Leone, vice chair, Commission on Dental Accreditation (CODA), *ex-officio*, were also in attendance. Commission Staff: Dr. Sherin Tooks, senior director; Ms. Peggy Soeldner, senior manager; and Mr. Shawn Morrison, Dr. Yesenia Ruiz and Ms. Taylor Weast, managers, CODA, were also in attendance. Ms. Kelly Stapleton, manager, CODA attended a portion of the meeting.

The following is a summary of the Ad Hoc Committee's findings related to the specific items and elements of the policy:

1. **Does the dental education area or discipline align with the accrediting agency's mission and scope?**

The Ad Hoc Committee confirmed that the request provided a definition when defining the scope of operative dentistry, cariology and biomaterials that is appropriate. The application emphasized that the discipline is seeing accreditation not as a dental specialty but instead as an area of general dentistry similar to Advanced Education in General Dentistry (AEGD) and

General Practice Residency (GPR). The Ad Hoc Committee noted that the scope of operative dentistry and biomaterials, two (2) components of the discipline, as presented in the application has some overlap with other areas of dentistry accredited by the Commission. The Ad Hoc Committee also concluded that the portion of the dental area related to cariology and risk assessment, research, biomaterials, minimally invasive restorative dentistry, prevention, non-surgical dentistry, and the preparation of future educators represents areas of dentistry with a deeper level of knowledge than other disciplines. Additionally, the request included eight (8) goals and objectives for educational programs in operative dentistry, cariology and biomaterials.

The request described how the area of operative dentistry, cariology and biomaterials aligns with the Commission on Dental Accreditation's mission and scope and noted that the educational programs' sponsoring institutions are currently accredited by appropriate oversight agencies, as required by the Commission. The request also included a description of the sponsoring organization (i.e., the Academy of Operative Dentistry) which indicated approximately 1,2000 members in the field and a sponsoring board (i.e., the American Board of Operative Dentistry).

Additionally, the request included a description of why advanced dental education programs in operative dentistry, cariology and biomaterials are important and significant to patient care and dentistry. The Ad Hoc Committee again noted that the field of cariology and related areas, as noted above, is unique and would address the health care of the general public. In conclusion, the documentation presented provided sufficient evidence that the area of operative dentistry, cariology and biomaterials aligns with the Commission's mission and scope. Therefore, the Ad Hoc Committee concluded that item "1" was satisfied.

2. Is there a sufficient body of knowledge to educate individuals in a distinct dental education area or discipline, not merely one or more techniques?

The request included a description of why it is believed that operative dentistry, cariology and biomaterials is a distinct area of dental education rather than a series of just one (1) or more techniques. The Ad Hoc Committee noted overlap of operative dentistry and biomaterials in other areas of dentistry, particularly prosthodontics and general dentistry in the description. In addition, the Ad Hoc Committee noted that the discipline represents an area of dentistry with a deeper level of knowledge than other disciplines in cariology and risk assessment, research, biomaterials, minimally invasive restorative dentistry, prevention, non-surgical dentistry, and the preparation of future educators, and believed these areas could be better defined to further emphasize the uniqueness and distinctiveness of this discipline.

The Ad Hoc Committee noted that the request included a list of nationally accepted competency statements and performance measures and documentation of a body of established, substantive, scientific dental knowledge underlying the area of operative dentistry, cariology and biomaterials. The request also documented that the education provided is at a level significantly

more advanced than other areas of dentistry and that the amount of research conducted appears to be beyond that of other areas of dentistry. Additionally, the discipline indicated that these programs are also designed to create future dental educators that are well rounded in all aspects of addressing caries as a disease and restorative dentistry.

In conclusion, the documentation presented provided sufficient evidence to demonstrate that there is a sufficient body of knowledge to educate individuals in a distinct dental education area or discipline of operative dentistry, cariology and biomaterials and not merely one or more techniques. Therefore, the Ad Hoc Committee determined that item "2" was satisfied.

3. Do a sufficient number of established programs exist and contain structured curricula, qualified faculty and enrolled individuals so that accreditation can be a viable method of quality assurance?

Information was presented on nine (9) existing educational programs in operative dentistry, cariology and biomaterials, all of which are located in university-sponsored institutions that sponsor dental schools. The documentation also indicated adequate numbers of faculty in the dental area of operative dentistry, cariology and biomaterials at these institutions. Programs identified are at least two (2) years in length at the post-doctoral level, which is acceptable. The information presented also indicated each program has a structured curriculum.

Following review of the documentation provided, the Ad Hoc Committee concluded that the request provided evidence to confirm that the number of established programs is sufficient and contains structured curricula, qualified faculty and enrolled individuals so that accreditation can be a viable method of quality assurance. Therefore, the Ad Hoc Committee determined item "3" was satisfied.

4. Is there evidence of need and support from the public and professional communities to sustain educational programs in the discipline?

Information provided appears to indicate that there are approximately 60 full- and part-time faculty among the nine (9) existing programs reported, which appeared to be sufficient to sustain educational programs in the discipline. Additionally, the request indicated there are a sufficient number of faculty, graduates, and expected new graduates to ensure peer review at all levels of the Commission's accreditation process.

Based on the documentation submitted, the Ad Hoc Committee concluded that the request provided sufficient evidence of need and support from the public and professional communities to sustain education programs in operative dentistry, cariology and biomaterials. Therefore, the Ad Hoc Committee determined that item "4" was satisfied.

Summary: In summary, the Ad Hoc Committee determined that the request submitted by the Academy of Operative Dentistry (AOD) to establish a process of accreditation for advanced dental education programs in operative dentistry, cariology and biomaterials adequately addresses the items delineated in the Commission's *Policies and Procedures for Accreditation of Programs in A New Dental Education Area or Discipline.* The Ad Hoc Committee concluded that the Commission should establish an accreditation process for advanced dental education programs in operative dentistry, cariology and biomaterials, including the next step of development of Accreditation Standards.

Ad Hoc Committee Recommendation: It is recommended that the Commission on Dental Accreditation establish a process of accreditation for advanced dental education programs in operative dentistry, cariology and biomaterials.

It is further recommended that the Commission on Dental Accreditation direct establishment of an Ad Hoc Committee composed of Commission members and educators and practitioners with expertise in the area of operative dentistry, cariology and biomaterials be appointed to draft Accreditation Standards for advanced dental education programs in operative dentistry, cariology, and biomaterials, with a future report to the Commission on Dental Accreditation.

Commission Action:

Prepared by: Ms. Peggy Soeldner

Dr. Gordon K Jones
[redacted]

June 13, 2024

Dr. Sherin Tooks
Director
Commission on Dental Accreditation
211 East Chicago Avenue
Chicago, Illinois 60611

Dear Dr. Tooks,

The ADA Council for Dental Education and Licensure recognizes the area of Operative Dentistry, Cariology, and Biomaterials (ODC&B) as a Special Interest Area of General Dentistry. In 2022, a request for development by the Commission on Dental Education (CODA) of a process to accredit the well-established residency level educational programs in this area was submitted to CODA with support from the Academy of Operative Dentistry (AOD). After review at the 2023 Winter meeting, the Commission provided invaluable feedback on their concerns about this request.

To develop a unified response to the Commission's concerns, and with the ultimate goal of establishing a CODA accreditation process for their programs, the Program Directors of the nine US Advanced Education programs which focus on ODC&B, formed the Advanced Operative Educators Alliance (AOEA). With the support of their Deans, they have joined the AOD in submitting this request.

The advanced education programs represented by the AOEA are affiliated with and integral to CODA-accredited university dental schools. All are well established, full-time academic programs ranging from two to five years in duration and confer certificates and/or MS, MSD, DSc, and PhD degrees, and are listed below with their Program Directors:

- Boston University (Dr. John Ictech-Cassis)
- University of California Los Angeles (Dr. Thomas Lee)
- University of Florida (Dr. Patricia Pereira)
- Indiana University (Dr. Oriana Capin)
- University of Iowa (Dr. Sandra Guzmán-Armstrong)
- University of Michigan (Dr. Gisele De Faria Neiva)
- University of North Carolina (Dr. Adalberto "Bert "Vasconcellos)
- University of Southern California (Dr. Sillas Duarte, Jr.)
- Tufts University (Dr. Gustavo Mahn Arteaga)

These programs seek the establishment of an accreditation review process to ensure their quality and ongoing improvement for the benefit and protection of the public, their residents, and the profession.

It should be emphasized that this application is for accreditation NOT as a dental specialty, but as an area of General Dentistry in addition to AEGD and GPR programs. A description of the scope of education involved in Operative Dentistry, Cariology, and Biomaterials (ODC&B) programs, with supporting exhibits, is attached, as well as a letter of support from the Deans of the accredited dental schools that award degrees for these programs.

After several meetings of all programs, and with their endorsement, I have been authorized by the Academy of Operative Dentistry to formally submit this request. Please let me know if you require any additional information or if there is anything else I can do to facilitate this request.

Very Respectfully,

Gordon K. Jones, D.D.S., M.S., A.B.O.D.
Academy of Operative Dentistry and Advanced Operative Educators Alliance CODA POC

Academy of Operative Dentistry/American Board of Operative Dentistry, Inc.
CODA Request Working Group

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COMMISSION ON DENTAL ACCREDITATION
EVALUATION AND OPERATIONAL POLICIES AND PROCEDURES MANUAL

POLICIES AND PROCEDURES FOR ACCREDITATION OF PROGRAMS IN A NEW DENTAL EDUCATION AREA OR DISCIPLINE

In initiating an accreditation review process for programs in a dental education area or discipline, the Commission on Dental Accreditation (CODA) seeks to ensure the quality of the education programs in the area or discipline for the benefit and protection of both the public and students/residents. The Commission's accreditation process is intended to promote and monitor the continuous quality and improvement of dental education programs and does not confer dental specialty status nor endorse dental disciplines.

Items 1 through 4 listed below provide a framework for the Commission to determine whether a process of accreditation review should be initiated for the new dental education area or discipline. Each item must be addressed in a formal, written request to establish an accreditation process for programs in an area or discipline of dentistry.

1. Does the dental education area or discipline align with the accrediting agency's mission and scope? *Jump to section*

A. Define the nationally accepted scope of the dental education area or discipline.
B. List the nationally accepted educational goals and objectives of the dental education area or discipline.
C. Describe how the area or discipline aligns with the Commission on Dental Accreditation's mission and scope.
D. Describe the quality of the dental education area or discipline, and need for accreditation review of the programs, as an important aspect to the health care of the general public. Include evidence that the area of knowledge is important and significant to patient care and dentistry.
E. Provide evidence that the programs are academic programs sponsored by an institution accredited by an agency legally authorized to operate and recognized by the United States Department of Education or, as applicable, by an accreditation organization recognized by the Centers for Medicare and Medicaid Services (CMS), rather than a series of continuing education experiences.
F. Describe the sponsoring, professional organization/association(s), if any, and (if applicable)
1) Academy of Operative Dentistry
- *name and contact information of association officers;*

- *list of sponsored continuing education programs for members within the last five (5) years; and*

2) for credentialing body: exam criteria; number of candidates; and pass rate for the past five (5) years.

- *Board Examination process*
- *Certification results for past 5 years*

2. *Is there a sufficient body of knowledge to educate individuals in a distinct dental education area or discipline, not merely one or more techniques?* ***Jump to Response***

Introduction. Describe why this area of knowledge is a distinct dental education area or discipline, rather than a series of just one or more techniques.

A. Describe how scientific dental knowledge in the education area or discipline is substantive to educating individuals in the education area or discipline.

B. Document the complexity of the body of knowledge of the education area by identifying specific techniques and procedures.

C. List the nationally accepted competency statements and performance measures for the dental education area.

D. Identify the distinct components of biomedical, behavioral and clinical science in the dental education area or discipline.

E. Provide documentation that there is a body of established, substantive, scientific dental knowledge that underlies the dental education area or discipline.

F. Document that the dental education program is the equivalent of at least one twelve-month full-time academic year in length.

G. Describe the current and emerging trends in the dental education area or discipline; and

H. Document that dental health care professionals currently provide health care services in the identified dental education area or discipline

3. ***Do a sufficient number of established programs exist and contain structured curricula, qualified faculty and enrolled individuals so that accreditation can be a viable method of quality assurance?*** ***Jump to Response***

Elements to be addressed:

A. Document that the educational program is comprised of formal curriculum at the postsecondary or postgraduate level of education leading to a bona fide educational credential (certificate or degree) that addresses the scope, depth and complexity of the higher education experience, rather than a series of continued education courses.

B. Describe the historical development and evolution of educational programs in the dental education area or discipline. Do not submit information on the history of the sponsoring organization.

C. Provide a list of all the currently operational programs in the dental education area or discipline, including the following information:

a. sponsoring institution;

b. name and qualifications of the program director;

c. *number of full-time and part-time faculty (define part-time for each program) and list the academic credentials required for these faculty;*
d. *curriculum (academic calendars, class schedules, student/resident competencies, syllabi that address scope, depth and complexity of the higher education experience, including course outlines for each course, formal approval or acknowledgment by the parent institution that the courses or curricula in the education area meet the institution's academic requirements for advanced education);*
e. *textbooks and journals, or other learning resources used within the educational program;*
f. *evidence that the program is a bona fide higher education experience that addresses the scope, depth and complexity of higher education, rather than preceptorships or a series of continuing education courses;*
g. *outcomes assessment methods;*
h. *minimum length of the program for full-time students/residents;*
i. *certificate and/or degree or other credential awarded upon completion;*
j. *number of enrolled individuals per year for at least the past five (5) years; and number of graduates per year for at least the past five (5) years. If the established education programs have been in existence less than five (5) years, provide information since its founding;*
k. *confirmation that the program in the education area would seek voluntary accreditation review, if available;*
l. *programs' recruitment materials (e.g. bulletin, catalogue); and*
m. *evidence that the programs in the discipline are legally authorized to operate by the relevant state or government agencies.*

4. Is there evidence of need and support from the public and professional communities to sustain educational programs in the discipline? ***Jump to Response***

Elements to be addressed:

- *Provide evidence of the ability to perform a robust, meaningful peer-reviewed accreditation process including a sufficient number of peers to conduct reviews at all levels of the Commission, as needed.*
- *List states where graduates of the dental education area or discipline are recognized for licensure and/or practice.*
- *Provide evidence of the potential for graduates to obtain employment, including the following information:*
  - *Employment placement rates (when available);*
  - *Documentation of employment/practice opportunities/settings; and*
  - *Evidence of career opportunities, student interest, and an appropriate patient base.*

Evidence:

1. Table 1. Core curriculum
2. Tab A. SJR Index of Journals- First quartile
3. Tab B. ABOD Procedure Guide
4. Tab C. Program Information
5. Tab D. Journals used in ODC&B programs
6. Tab E. Textbooks used in ODC&B programs

Introduction. The ADA Commission on Dental Education and Licensure has recognized Operative Dentistry, Cariology, and Biomaterials as a special interest area of General Dentistry. Renewal of that status was approved by the ADA House of Delegates in 2022. Because the special interest area includes 9 advanced education programs, the Academy of Operative Dentistry's interest in initiating an accreditation review process is stronger now than it was 4 years ago when the request for establishment of an accreditation process was begun.

The impact of COVID 19 on the profession have returned to a more normal status and the Academy of Operative Dentistry is again formally requesting the establishment of an accreditation process for programs in the general dentistry special interest area of Operative Dentistry, Cariology, and Biomaterials.

The following information is submitted in support of that request and is prepared using the format provided by CODA as an outline. The questions are included as the framework for the responses.

1. Does the dental education area or discipline align with the accrediting agency's mission and scope?

A. Define the nationally accepted scope of the dental education area or discipline.

GV Black, in 1908, compiled all then-current knowledge on caries into a four-volume textbook on the discipline of operative dentistry. In it, Black explained the pathophysiology of caries, described how to prepare teeth to remove carious tissue, and set standards for the common restorative materials of the time (Black, GV. *Operative Dentistry*. Chicago: Medico-Dental Publishing. 1908). Other than extractions and dentures, dentistry *was* operative dentistry. Throughout the 20th century, other areas of dentistry split off into specialty disciplines such as Periodontics, Endodontics, and Oral Pathology, leaving operative dentistry as the core practice of general dentistry.

Dentistry has evolved since the days of GV Black. In moving from Dr. Black's "extension for prevention" philosophy to the patient-focused and individualized Caries Management by Risk Assessment, minimally invasive techniques, vital pulp therapy, and use of adhesive materials, the skills of "Operative" have evolved into a complex discipline. The depth and breadth of this special interest area now requires advanced training.

The special interest area of ODC&B has expanded the scope of "operative dentistry" to include an entire field of scholarship on Cariology, which has expanded the understanding of diagnosing and managing this prevalent and complex oral disease. Dr. Black could not have imagined the ever-changing variety of biomaterials available today, much less the complexity and critical thinking necessary for their use.

The author of *Sturdevant's Art and Science of Operative Dentistry* offers, "Operative dentistry is defined as the science and art of dentistry which deals with diagnosis, treatment, and prognosis of defects of the teeth which do not require full coverage restorations or correction. Such treatment should result in the restoration of proper

form, function, and esthetics while maintaining the physiologic integrity of the teeth in harmonious relationship with the adjacent hard and soft tissues, all of which should enhance the general health and welfare of the patient." (Sturdevant, C. ed. *Sturdevant's Art and Science of Operative Dentistry*. 1st ed. St Louis: Mosby Publishing. 1968)

In 2022, the Academy of Operative Dentistry's application for recognition of Operative Dentistry, Cariology, and Biomaterials as a Special Interest Area of General Dentistry to the ADA Council of Dental Education and Licensure (CDEL), this area was defined as "the field of general dentistry that deals with the management of teeth, by direct or indirect means that are defective through disease, trauma, wear, and/or abnormal development, or are unesthetic, to a state of normal form, function, health, and appearance. The practice of dentistry in this area requires a wide range of knowledge, from diagnosis, disease processes and prevention, and minimally invasive clinical approaches; to biomaterials and other dental science disciplines as they apply to this distinct and unique interest area limited to the hard calcified tissues of the oral cavity." This definition of the scope of this area was accepted by CDEL with their approval of the AOD application.

Finally, *the following **definition and scope** has been developed by the Advanced Operative Educators Alliance (AOEA)* in 2024.

The definition of this special interest area is:

Operative Dentistry, Cariology, and Biomaterials (ODC&B) is the special interest area of general dentistry which manages caries and non-carious diseases, disorders, and conditions of the dentition to restore and maintain optimal patient oral health, comfort, function and esthetics through evidence-based knowledge, risk-based diagnosis, prevention, and conservative approaches.

The scope of this special interest area is:

- Advanced knowledge, critical thinking, and application of scientific methods to the procedures and materials in the educational domain of Operative Dentistry, Cariology, and Biomaterials including:
  - Direct restorations, including all available materials.
  - Indirect restorations, including single tooth inlays, onlays, veneers, and crowns on natural teeth and implants. Bonded fixed partial dentures and short span implant restorations are commonly included.
  - Management of caries disease and other tooth conditions affecting teeth, such as attrition, abrasion, and/or abfraction.
  - Development and use of biomaterials in restorative procedures.
  - Digital dentistry.
- Advanced comprehensive care achieved by interdisciplinary/ interprofessional health care teams, including consultation and referral to provide patient-centered care, overall health promotion, and disease prevention.
- Development, execution, and analysis of research in the field of operative dentistry, cariology, and biomaterials.

- Preparation of graduates to pursue an academic career in dental education.

B. List the nationally accepted educational goals and objectives of the dental education area or discipline.

Operative Dentistry is taught in every dental school as a core discipline of restorative dentistry. However, nine US dental schools also have 2-5-year advanced postgraduate education programs for Operative Dentistry, Cariology, and Biomaterials (ODC&B). Their graduates have advanced skill and knowledge necessary for careers focusing on these areas, primarily in practice, education, research, and industry.

Educational goals and objectives for graduates of ODC&B programs. Graduates will:

- Have advanced knowledge and expertise in Cariology, Biomaterials, and Operative Dentistry, including in digital dentistry technologies.
- Demonstrate skills as a master clinician in treating patients with complex oral disease presentation and/or compromised health.
- Demonstrate advanced knowledge and expertise in Biomaterials, including restorative dental material, and occlusion, specifically the clinical implications of use in cases involving prosthetics (including dental implants), periodontal and endodontic care.
- Function efficiently within interdisciplinary health care teams, including coordinating patient-centered care.
- Demonstrate knowledge in educational theory and best practices with the ability to teach effectively at the pre-doctoral and post-graduate levels.
- Conduct original scientific research using knowledge in scientific methodology and research design, including writing peer-reviewed scholarly articles for publication in dental literature.
- Bring the values of professional ethics, lifelong learning, patient-centered care, adaptability, and acceptance of cultural diversity to her/his professional practice.
- Collaborate in programs to meet the oral health needs of communities and engage in community service.

C. Describe how the area or discipline aligns with the Commission on Dental Accreditation's mission and scope.

Mission: *"The Commission on Dental Accreditation serves the public and dental professions by developing and implementing accreditation standards that promote and monitor the continuous quality and improvement of dental education programs."*

Operative Dentistry, Cariology, and Biomaterials programs are centrally focused on caries disease, the most prevalent oral disease, and methods to prevent and treat the damage caused by this disease. With a level of knowledge deeper than that taught in dental schools, coupled with advanced knowledge and ability to critically examine current

research in dental biomaterials and restorative techniques, graduates of ODC&B programs are uniquely qualified to lead the next generation of general dentists in accredited dental schools in the United States.

Scope*: CODA is nationally recognized by the United States Department of Education (USDE) as the sole agency accrediting dental and dental-related education programs at the post-secondary level. CODA's mission is to serve the oral health care needs of the public through the development and administration of standards that foster continuous quality improvement of dental and dental related educational programs. The general public and communities of interest have direct access to CODA's Meeting Agenda and Materials. Additionally, updated information about CODA's activities is available by reviewing information in the Accreditation News.*

Advanced education programs in the special interest area of ODC&B are strongly aligned with the goal of serving the health care needs of the public through their focus on caries, the most common disease of mankind. Their formation of the Advanced Operative Educators Alliance (AOEA) has fostered communication and alignment of their programs through this application process. They welcome the continuous quality improvement process of their educational programs.

Accreditation review of the ODC&B advanced education programs will foster continuous quality improvement of these programs by:

- Establishing accreditation standards for all ODC&B programs, providing structure and guidance for the program sponsors and directors.
- Improving collaboration and consistency among the ODC&B programs.
- Developing and improving individual programs through the rigorous self-study process.
- Ensuring that ODC&B programs continue to serve the oral health care needs of the public by promoting and delivering patient-centered approaches in teaching, research, and oral health care.

D. Describe the quality of the dental education area or discipline, and need for accreditation review of the programs, as an important aspect to the health care of the general public. Include evidence that the area of knowledge is important and significant to patient care and dentistry.

The knowledge area comprising Operative Dentistry, Cariology, and Biomaterials is not only “important and significant” to patient care, but the central, core discipline of dentistry. Separating this knowledge area from the practice of dentistry is impossible.

ODC&B advanced education programs are of a quality on par with advanced education programs in the recognized dental specialties in preparing post-doctoral dentists to be certified in a particular discipline. All ODC&B programs are integral to their sponsoring

institution, a CODA-accredited university dental school; almost half of these programs were established over 60 years ago.

The minimum duration of the programs is 2 years of full-time study and research. Most require 3-5 years depending on the degree awarded, either certificate of training, Master's degree, or PhD degree.

The special interest area has a significant impact on the development of all predoctoral dental students, the profession, and the public. Every practicing dentist has learned and benefitted from the research, writing, and instruction of members of the special interest area of ODC&B. A review of the Curricula of the programs will reveal the depth, breadth, and complexity of the education available in these programs.

E. Provide evidence that the programs are academic programs sponsored by an institution accredited by an agency legally authorized to operate and recognized by the United States Department of Education or, as applicable, by an accreditation organization recognized by the Centers for Medicare and Medicaid Services (CMS), rather than a series of continuing education experiences.

The following table lists the nine ODC&B Programs and their sponsoring Institution, all of which are located in a university-sponsored dental school. Each of the sponsoring universities is accredited by CODA and recognized by an accrediting agency recognized by the United States Department of Education or, as applicable, by an accreditation organization recognized by the Centers for Medicare and Medicaid Services (CMS). All sponsor other advanced education programs accredited by CODA. All are 2+-year full-time advanced education programs, with no options for part-time, weekend, or short-course attendance and completion.

Links to the Tab containing curricula are provided below in Tab C- Program information.

Program	Sponsoring Institution	Program Director
Advanced Esthetics, Digital and Operative Dentistry	Boston University	Dr. John Ictech-Cassis jcassis@bu.edu
Advanced Clinical Training in Restorative Dentistry	The University of California at Los Angeles	Dr. Thomas Lee tomklee@ucla.edu
Operative and Esthetic Dentistry	The University of Florida	Dr. Patricia Pereira ppereira@dental.ufl.edu
Cariology and Operative Dentistry	Indiana University	Dr. Oriana Capin ocapin@iu.edu

Advanced Education Program in Operative Dentistry	The University of Iowa	Dr. Sandra Guzman-Armstrong sandra-guzman-armstrong@uiowa.edu
Graduate Restorative Dentistry Program	University of Michigan	Dr. Gisele De Faria Neiva gisele@umich.edu
Graduate Program in Operative Dentistry and Biomaterials	University of North Carolina	Dr. Adalberto "Bert"Vasconcellos bert_vasconcellos@unc.edu
Advanced Operative and Adhesive Dentistry	University of Southern California	Dr. Sillas Duarte, Jr. sillas.duarte@usc.edu
Advanced Education in Esthetics and Operative (AEEOD) Dentistry	Tufts University	Dr. Gustavo Mahn Arteaga gustavo.mahn_arteaga@tufts.edu

F. Describe the sponsoring, professional organization/association(s), if any, and (if applicable) the credentialing body, including the following information:

1) **Academy of Operative Dentistry.** "The Academy of Operative Dentistry is a worldwide organization of **over 1200 professionals from over 25 countries** who have a special interest in Operative Dentistry and a commitment to excellence."

- **Names and contact information of association officers:**

President: Dr. Chris Griffin

President Elect: Dr. Tom Cyr

Vice President: Dr. Ana Bedran-Russo
801 S. Paulina St. Chicago, IL 60612
Chicago, IL
bedran@uic.edu

Secretary: Dr. Richard G. Stevenson III

Treasurer: Dr. Paul Hasegawa

- **List of sponsored continuing education programs for members within the last five (5) years**:

  Every year the Academy of Operative Dentistry holds its annual meeting in February in Chicago, Illinois with approximately 250 attendees. At each meeting there are two days of scientific Continuing Dental Education lectures (10 hours) which include nationally and internationally recognized speakers and Table Clinics (3 hours). Several of the recurring named lectures are sponsored. CERP CDE credits are awarded for those lectures with documented attendance and for time spent attending table clinics.

  Highlights each year include:
  - Tucker Lecture of Excellence, usually on clinical techniques
  - Cariology lecture for advancements in research and practice on prevention and conservative treatment
  - Buonocore Lecture focused on advanced material research
  - Summitt Lecture on Innovation, including digital dentistry topics
  - An Interdisciplinary series including how orthodontics, oral surgery or periodontics interfaces with Operative Dentistry.

  Meeting dates for the past 5 years:
  - 2024, Feb 22-23, Chicago
  - 2023, Feb 23-24, Chicago
  - 2022, Feb 22-23, Chicago
  - 2021, Feb 18-19 held virtually
  - 2020, April 19 held virtually

- **In addition to the Scientific Program, the Academy supports adjunct meetings of interest to attendees:**

  - American Board of Operative Dentistry, Inc. Annual Meeting, including administering written and oral boards

- *Operative Dentistry* Journal Editorial Board Meeting
- CAMBRA (Caries Management By Risk Assessment) meeting and educational seminar
- CODE (Consortium of Operative Dentistry Educators) National meeting and educational seminar for Operative faculty members.
- American Academy of Gold Foil Operators Executive Council meeting
- Academy of Richard V. Tucker Study Clubs Executive Council meeting

Students in ODC&B advanced education programs are encouraged to attend the AOD meeting and to present their thesis research as a table clinic, but attendance does not grant academic credit.

- **The Academy of Operative Dentistry's journal *Operative Dentistry,*** published by Allen press, is a refereed, international journal published bi-monthly and distributed to subscribers in over 50 countries. It is in the top quartile internationally of all dental journals, with an impact factor of 2.23.

See Tab A- SJR Index of Dental Journals

2) **For credentialing body: exam criteria; number of candidates; and pass rate for the past five (5) years**.

Credentialing in ODC&B, beyond the certificates or degrees awarded by sponsoring institutions, is provided by the **American Board of Operative Dentistry, Inc. (ABOD)**. The Academy of Operative Dentistry established the ABOD in 1980 to administer a highly demanding and rigorous three-part board certification process.

Certified ODC&B dentists teach or practice in 8 countries, with the majority active in the United States. 74 candidates are currently in the process of taking the examination. The ODC&B advanced education program directors highly encourage this certification.

- The ABOD examination consists of three parts:

1. **Part 1: Written Exam**. A 400- to 450-question, 6-hour written examination that the candidate must pass as a prerequisite to the clinical and oral phases.
2. **Part 2: Clinical**. In the past, this clinical examination involving live patients required demonstrated excellence in creating and delivering 5 different types of restorations. However, because of COVID, a portfolio format was adopted as a pilot alternative and will be re-evaluated in August, 2025.
3. **Part 3: Oral defense** of 3 or more comprehensive cases submitted to the board through written documentation, photographs, and models.

More details regarding the 3 examination phases can be found in the 2023-2024 ABOD Procedural Guide. See Tab B. ABOD Procedure Guide 2023-2024

- **Certification results for the past 5 years:**

AMERICAN BOARD OF OPERATIVE DENTISTRY						
Examination Summary 2018 - 2023						
Year	**Exam Components Administered**			**Exam Components Passed**		
	Written	Clinical	Oral	Written	Clinical	Oral
2020	14	0	3	9	0	2
2021*	0	0	2	0	0	2
2022**	19	7	1	3	4	1
2023**	10	0	2	5	3	2
2024	10	2	1	4	2	1
Total	53	9	9	21	9	8
Pass Rate				40%	100.0%	88.9%

* In 2021, no Written or Clinical Examinations were administered due to COVID 19 restrictions. 2 Oral exams were administered.

** In 2022, a Pilot Portfolio Examination was introduced as an optional alternative to the Clinical Exam but is not yet included in the Attached Examination Procedure Guide. As a result, 8 Portfolios have been submitted. All required some modifications; of the resubmitted portfolios, 5 were judged to meet ABOD Standards and "passed." 3 candidates have been given the opportunity to resubmit their portfolios after further improvements and have not "failed" this part of the examination to date.

Due to high demand in the past ten years, the average time of three years to complete the process has increased to 5 years, partly as a result of the 2-year COVID related gap. Currently, 74 candidates are still in the process of completing the examination at this time. If the Written Examination is considered as a qualifying examination, the pass rate for the Clinical and Oral Examinations is 94.4% over the past 5 years (17/18).

Source: Chair, Examination and Certification Committee, American Board of Operative Dentistry, Inc.

2. Is there a sufficient body of knowledge to educate individuals in a distinct dental education area or discipline, not merely one or more techniques?

Dental caries is the most prevalent disease of mankind, causing extensive pain, infection, and disability both in the US and worldwide. (See Question 4. C. 3 Disease burden below) While treating caries and the damage caused by caries forms a major share of current dental education and practice, the underlying knowledge base of Cariology is not only extensive but a major area of active research. North American schools have somewhat lagged behind some areas (northern Europe, for example) in incorporating Cariology evidence into their overall treatment planning, particularly in individualized risk assessment, non-surgical treatment, and conservative dentistry. ODC&B advanced education programs equip their graduates to teach these important emerging skills.

Disciplines such as Prosthodontics, Endodontics, and Oral Surgery are taught at a basic level in dental school, but all have accredited advanced education programs to provide additional education in background knowledge and skills. Similar to AEGD and GPR programs, which are accredited as special interest areas of general dentistry, ODC&B seeks the same process of accreditation as a special interest area of general dentistry.

It may be helpful to clarify how ODC&B programs differ from programs that share aspects of the ODC&B domain.

- **ODC&B programs vs Pre-doctoral programs**: The primary difference between ODC&B graduates and new dental graduates is in their depth of knowledge and familiarity with the discipline's science and literature base.

For example, in the area of critical thinking, the ADEA has determined that expectation of a new graduate is:

Graduates must be competent to:

1.1 Evaluate and integrate emerging trends in health care as appropriate.

1.2 Utilize critical thinking and problem-solving skills.

1.3 Evaluate and integrate best research outcomes with clinical expertise and patient values for evidence-based practice.

ADEA Competencies for the New Dental Graduate, 2018

However, the expectation of a graduate of an ODC&B program is the ability to practice with the utmost skill, teach, and conduct research by mastering the evidence base of literature of science and literature in their areas of special interest, and well as be able to integrate that into a larger educational schema.

- **ODC&B programs vs AEGD, GPR programs**: While both AEGD and GPR programs produce general dentists with additional skills and training, AEGD and GPR programs spread their focus over the entire range of clinical disciplines. Their curricula do not focus on the literature of operative technique, cariology, and biomaterials to the depth

of the ODC&B programs. They also do not have the focus on educational training or independent research requirements of ODC&B programs.

The CODA Standard 2-2 for both Advanced Education in General Dentistry and for General Practice Residencies is identical. It states:

2-2 The program must have written goals and objectives or competencies for resident training and provide didactic and clinical training to ensure that upon completion of training the resident is able to provide the following at an advanced level of skill and/or case complexity beyond that accomplished in pre-doctoral training:

a) operative dentistry;
b) restoration of the edentulous space;
c) periodontal therapy;
d) endodontic therapy;
e) oral surgery;
f) evaluation and treatment of dental emergencies; and
g) pain and anxiety control utilizing behavioral and/or pharmacological techniques.

While ODC&B programs involve coordination of care for items **b, c, d,** and **e**, and similar depth in **f** and **g,** they do not go into depth on the techniques or literature of these disciplines. ODC&B programs emphasize operative dentistry skills, cariology, biomaterials, research, and educator skills.

- **ODC&B programs vs Prosthodontics programs:** While Prosthodontic programs may cover some of the same procedures (crowns, veneers and implant restoration, for example) the focus is significantly different.

The CODA Standard 4-11. for Advanced Dental Education in Prosthodontic states:

4-11 Instruction must be provided at the in-depth level in each of the following areas as both separate entities and integrated treatment approaches used to address patient needs and expectations.

a. Fixed prosthodontics;
b. Removable prosthodontics;
c. Implants and implant therapy;
d. Occlusion;
e. Esthetics;
f. Biomaterials;
g. Digital technology;
h. Wound healing;
i. Surgical principles;
j. Infection Control;
k. Craniofacial anatomy and physiology related to prosthodontic therapy

including dental implant placement;

l. Diagnostic Imaging, including three-dimensional imaging related to prosthodontic therapy including dental implant placement; and

m. Prosthodontic diagnosis and treatment planning.

While ODC&B programs also provide training in **a** (primarily single tooth), **c, d, e, f, g, j** and **l,** the focus is different. Prosthodontists practice as specialists, concentrating on indirect restorations and full mouth reconstructions, while graduates of ODC&B programs are general dentists with more in-depth training in direct materials and techniques. ODC&B graduates are best equipped for managing patients with a significant active caries concern.

Additionally, there is a distinct difference in that ODC&B programs focus on educating the next generation of dental professionals (and the public) in managing caries and other destructive diseases, while proportionally most prosthodontists are located in the private practice arena.

Body of knowledge of ODC&B:

The World Health Caries Organization (WHO) reports that more than half of the world's population is affected by dental caries, making dental caries the most prevalent disease of mankind and a major public health issue. Dental caries leads to long-term health consequences and creates a significant need for treatment and care.

Advanced education on this topic has a long and documented history. The 1993 article "Unique Curriculum Guidelines for Postdoctoral Operative Dentistry programs" J Dent Educ 1993 Nov;57(11):832-6 was used for nearly 30 years to define advanced Operative Dentistry; however, these are no longer current and are superseded by the Core Curriculum developed by the national AOEA.

See Table 1- Core Curriculum

Educational training programs in ODC&B are designed to prepare future educators to teach at dental schools not just in the United States, but globally. Their goal is to create knowledgeable, world-class educators who can impart knowledge and influence dental practices worldwide.

A. Describe how scientific dental knowledge in the education area or discipline is substantive to educating individuals in the education area or discipline.

Each program's curricula demonstrate how scientific knowledge forms the basis for their individual teaching at an advanced level. Educational techniques include seminars, lectures, self-paced projects, and clinical mentorship.

See Tab C. Program Information

B. Document the complexity of the body of knowledge of the education area by identifying specific techniques and procedures.

As supported by the scholarship noted above, the Core curriculum developed by ODC&B program directors has 10 domains:

- Dental anatomy
- Dental caries and non-carious tissue disorders
- Biomaterials
- Esthetics
- Interprofessional education
- Teaching methods for dental education
- Restorative techniques
- CAD-CAM technology
- Implant restorations
- Research.

A list of specific techniques (see attached curricula) would include all techniques involved in the most succinct definition of Operative Dentistry, namely prevention, diagnosis, and treatment of diseases of the teeth by restoration using biocompatible substitutes.

Table 1: Core Curriculum
Tab D- Journals used in ODC&B programs
Tab E. ODC&B Textbooks

C. List the nationally accepted competency statements and performance measures for the dental education area.

Arguably, the Integrated National Dental Board and every state board are concerned with the (minimal) competency of new dental school graduates in the area of operative dentistry. However, ODC&B advanced education programs follow a more stringent curriculum at a deeper level of knowledge and complexity for experiences in clinical practice, research, and education. The difference among the programs is the emphasis on each of the experiential areas.

The goal of Advanced Education Programs in Operative Dentistry, Cariology, and Biomaterials is to educate dentists to move beyond the competencies obtained in pre-doctoral dental education and to function as an operative dentist with advanced clinical skills, educational, and research-track training in this field of interest.

Competencies. These describe core tasks performed by an ODC&B dentist. The following main competencies are established by Advanced Education Program Directors in the US.

'Advanced knowledge' is defined as knowledge of contemporary literature, application of the literature to practice, and critical analysis of clinical decisions based on the literature.

At completion of the program the graduate must be able to demonstrate:

Operative and Restorative Dentistry and Clinical Practice:

- Diagnostic skills and knowledge of evidence base in gathering data, diagnosis, and developing individualized treatment plans.
- Provide patient-focused care coordinated by the general practitioner within interdisciplinary health care teams including consultation and referral.
- Assess, diagnose, and plan for the provision of multidisciplinary oral health care for a wide variety of patients, including those with special needs.
- Advanced skill in pain and anxiety control utilizing behavioral and/or pharmacological techniques.
- Advanced knowledge of evidence base and clinical skills in minimally invasive, conservative techniques including pulpo-dentin preservation techniques.
- Advanced knowledge and skills in digital dentistry such as intra-oral scanning, digital design, CAD-CAM, and 3D printing technologies.
- Critical analysis of evolving technologies and scientific literature.
- Advanced knowledge and skills in restoration of implants.
- Evidence-based education about chronic oral disease management and prevention.

Esthetics:

- Advanced skills in assessment and diagnosis of facial esthetics and esthetic treatment planning with emphasis on minimally invasive therapies.
- Advanced skills in dental photography and videography to promote diagnosis, patient education, and legal documentation.
- Application of color theory to diagnosis and selection of restorative materials.

Cariology:

- Advanced knowledge of the evidence base in etiology, microbiology, and risk-based management of caries.
- Advanced skills in risk-based diagnosis and treatment planning in preventive, non-surgical, and surgical therapies emphasizing minimally invasive techniques.

Biomaterials:

- Advanced knowledge in the evidence base on clinical indications, limitations, manipulation, maintenance, and repair of currently available biomaterials.
- Advanced skills in contemporary adhesive dentistry techniques.

Research:

- Demonstrate mastery of the scientific literature in a chosen area of research.

- Demonstrate knowledge of ethical responsibility in conducting research, including research on animal and human subjects.
- Develop, conduct, and analyze the results of a research project.
- Apply the fundamentals of biostatistical analysis.
- Organize, communicate, and defend research.

Educational skills:

- Knowledge of teaching skills in pre-clinical and clinical settings, including active learning techniques.
- Skills in organizing, developing, and delivering educational modules.
- Skills in developing assessments and interpretation of assessment statistics.

Professional and leadership skills:

- Application of the principles of ethical reasoning, clinical decision making and professional responsibility in patient care and practice management.
- Ability to describe oral health needs of communities and advocate for scientific positions on community and national health issues.
- Ability to provide social responsibility, community leadership, and inclusiveness within the profession.

Performance measures. Resident and program performance measures assess the program's overall success in meeting goals. These include, but are not limited to:

- Resident rotation assessments and self-assessments
- Residence didactic assessments
- Resident preclinical and clinical assessments and self-assessments
- Resident program assessments and self-assessments
- Faculty assessments of resident performance
- Resident evaluations of program effectiveness and faculty
- Periodic resident meetings with program director
- Resident exit surveys/interviews
- Employment rates and acceptance into further post-doctoral programs
- Alumni surveys

D. Identify the distinct components of biomedical, behavioral and clinical science in the dental education area or discipline.

1. **Biomedical Science** – Biomaterials; Cements, Bases, and Liners; Dental Ceramics; Dental Anatomy; Dental Bonding Chemistry; Dental Remineralization Therapy; CAD/CAM and Digital Dentistry; and Restorative Dental Material Chemistry, Characteristics, and Development

2. **Behavioral Science** – Preventive Dentistry, Caries Risk Assessment, Patient Education and Motivation, Comprehensive Case Management, Dental

Education, Scientific Writing, Conducting Research, Research Design and Methods, Literature Review, Case Presentation and Biostatistics

3. **Clinical Science** – Cariology, Bioactive Caries Treatments, Preventive Dentistry, Topical Fluoride, Therapeutic Agents (Antibiotics), Minimally Invasive Dentistry, Operative Dentistry, Indirect Restorations, Direct Restorations, Esthetic Dentistry, Dental Bonding, Dental Sealants, Caries Arresting Treatments, Resin Infiltration, Microabrasion, Caries Management by Risk Assessment, Restoration of Implants, Dental Whitening/Bleaching, Multidisciplinary Treatments, Partial Interim Removable Prosthesis, Endodontic Considerations of Operative Dentistry, Vital Pulp Therapy, Periodontal Considerations of Operative Dentistry, Orthodontic Considerations for Operative Dentistry Occlusion, Splint Therapy, and Intra-oral Photography

See Table 1, Core Curriculum

E. Provide documentation that there is a body of established, substantive, scientific dental knowledge that underlies the dental education area or discipline.

Advanced programs in this discipline have been established for over 60 years. The breadth of scientific knowledge is demonstrated by the multiple textbooks and journals devoted to these areas of knowledge, research, and techniques used in the ODC&B field.

- **Textbooks.** A search of the textbooks devoted to ODC&B reveals at least 11 textbooks for pre-doctoral students currently in print, and more than 4-5 times that many addressing aspects of the area at the post-doctoral level, most written by operative dentists. Examples are listed in Tab E- Textbooks, and, at least as many more, at both levels, have been omitted out of space considerations.
- **Journals.** Multiple journals are published on Operative Dentistry, Cariology, Dental Materials, and Dental Research. These have wide distribution and high impact factors on a level with journals in recognized specialty areas. The fields of Cariology and Biomaterials in particular are highly investigated areas of scholarship.

  Of the 60 most referenced dental journals on all subjects, 29 are directly related to Operative Dentistry, Cariology and Biomaterials Ref: Scimago Journal and Country Rank https://www.scimagojr.com/index.php) March 7, 2024.
  Tab A; SJR Index of Journals)

  A rich and varied evidence of current scholarship demonstrates breadth, depth, and specificity of information related to ODC&B.

Tab D. Journals used in ODC&B programs

F. Document that the dental education program is the equivalent of at least one twelve-month full-time academic year in length.

Of the nine ODC&B programs, the minimum length of each program is 2 years of full-time academic study:

Institution	Minimum length of program
Boston University	2 years
University of California Los Angeles	2 years
University of Florida	3 years
Indiana University	3 years
University of Iowa	3 years
University of Michigan	3 years
University of North Carolina	3 years
University of Southern California	26 months
TUFTSUniversity	2 years

G. **Describe the current and emerging trends in the dental education area or discipline:**

Operative Dentistry

Digital restorative dentistry
Dental remineralization
Dental whitening/bleaching
Microabrasion
Prepless veneers
Vital pulp therapy with bioactive products
Dental bonding
Esthetic dentistry
Smile design
Polychromatic direct restorations
Comprehensive case management
Restoration of implants
Management of complex occlusion schemes
Splint therapy for TMJ dysfunction.

Dental photography

Cariology

Microbiology
Artificial intelligence for the diagnosis of dental caries
Optical coherence tomography
Silver Diamine Fluoride (SDF)
Topical fluoride and alternatives to non-fluoride chemotherapeutic agents
Personalized antimicrobials
Probiotics and prebiotics
Genetic modification
Caries management by risk assessment (CAMBRA)
Calcium based caries treatment
Biofilm and cariogenesis
Resin infiltration
Vital pulp therapy for management of extensive carious lesions

Biomaterials

Dental bioactive materials
Dental adhesion
Dental ceramics and zirconium oxide materials
Novel resin cements
Development of amalgam alternative materials
CAD/CAM materials

Table 1. ODC&B Core Curricula,
Tab D. Journals used in ODC&B programs
Tab E. Textbooks used in ODC&B programs

H. Document that dental health care professionals currently provide health care services in the identified dental education area or discipline.

One indicator of the quality of the programs and evidence that ODC&B is important and significant to patient care and dentistry is in how ODC&B graduates are leaders in the profession and dental education, as demonstrated by these examples:

- Approximately 1200 members of the Academy of Operative Dentistry provide health care services in the area of ODC&B.
- 54 university faculty teach in advanced education programs and provide health care services in the area of ODC&B.
- Many Department Chairs, Commanding Officers, and Directors of Operative Dentistry, Cariology, and Biomaterials Programs in the US and abroad.
- Two have served and one currently serves as the Dean of an accredited dental school in the United States.

- Several have led the ADA Foundation's Paffenbarger Research Center at the National Institute of Standards and Technology.
- One serves as chair of the ADA Standards Committee coordinating with the American National Standards Institute to manage the University Outreach Program.
- Two have served as admirals in the U.S. Navy Dental Corps leading thousands of commissioned dental officers.
- One is serving as Commanding Officer of the Naval Dental Research Institute overseeing dental research in the U.S. Department of Defense.
- Current Navy Operative community:
  "There are 8 operative billets in the Navy currently, 7 more have been requested. There are 22 active Operative dentists in the Navy currently" (Communication from the Navy's Specialty Leader for Operative Dentistry, CAPT Kristi Erickson)
- More than 100 dentists have achieved Certification by the American Board of Operative Dentistry, Inc.

3. Do a sufficient number of established programs exist and contain structured curricula, qualified faculty and enrolled individuals so that accreditation can be a viable method of quality assurance?

In the 2022 accreditation application, item #3 was determined to meet the standards of the CODA Ad Hoc Committee:

> ***"Information was presented on ten (10) educational programs in operation, many of which are in academic institutions; the documentation also indicated adequate numbers of faculty in the dental area. Programs identified are at least two (2) years in length which is acceptable. The information presented indicated each program has a structured curriculum that is generally consistent among the programs, although there was some variability given variability in program length.***
>
> ***Following review of the documentation provided, the Ad Hoc Committee concluded that the request provided evidence to confirm that the number of established programs is sufficient and contains structured curricula, qualified faculty and enrolled individuals so that accreditation can be a viable method of quality assurance. Therefore, the Ad Hoc Committee determined item "3" was satisfied."***

The following information is therefore resubmitted, with updates to reflect changes that have occurred within the last 2 years.

A. Document that the educational program is comprised of formal curriculum at the postsecondary or postgraduate level of education leading to a bona fide educational credential (certificate or degree) that addresses the scope, depth and complexity of the higher education experience, rather than a series of continued education courses.

Review of the curricula of the 9 programs that are seeking an accreditation process listed in this request clearly demonstrates that the programs are at the post-doctoral level in CODA-accredited dental schools. The briefs provided by the programs demonstrate that the programs lead to a bona fide educational credential (certificate, Master's Degree, or PhD) that addresses the scope, depth of the ODC&B field of study as opposed to a series of continued education courses.

B. Describe the historical development and evolution of educational programs in the dental education area or discipline. Do not submit information on the history of the sponsoring organization.

The historic development and evolution of the educational programs in Operative Dentistry, Cariology, and Biomaterials (ODC&B) follows that of dental education in the United States. The first institutions of dental education were established in the mid-nineteenth century, and dental schools recognized that studying the etiology,

treatment, and prevention of dental caries was a paramount patient need.

Traditionally, faculty interested in research and education in ODC&B were recruited from graduating dental students who demonstrated a particular interest in and/or talent for ODC&B. As dental education matured and specialties developed training programs leading to advanced degrees, it became clear that faculty in ODC&B were considered less competitive for academic rank, promotion, and tenure than their specialist peers. As a consequence, many new faculty members recruited each year would teach in ODC&B for a few years before moving on to private practice or specialty training. Attracting and retaining quality faculty was becoming more challenging each year. As a result, the quality of predoctoral dental education in ODC&B was not keeping up with that in the specialties.

In the mid-twentieth century, several dental schools opened advanced programs in Operative Dentistry, Cariology, and Biomaterials to improve the quality of faculty, research, and education in this area. The University of Michigan and Indiana University were among these. Both programs emphasize the advanced clinical skills needed to deliver high-quality restorations made from high-quality materials. Recognizing that only a few of the restorative dental materials used in the 1950s are still in general use today demonstrates the advance in that aspect of ODC&B. The Michigan program was oriented towards research, cariology, restorative dental materials, occlusion, comprehensive case management, and periodontic considerations in restorative dentistry. A Master of Science degree continues to be awarded by the Rackham Graduate School of the University of Michigan.

The Indiana program was focused on dental materials, individual restorations, and preventive dentistry. A Master of Science in Dentistry was, and still is, awarded by the University of Indiana.

A significant milestone in the area of ODC&B was the discovery of *Streptococcus mutans*, one of the major culprits in tooth decay, by dental researchers at the Forsyth Institute in Boston in collaboration with the NIH, Boston University, and Tufts University. There was a significant amount of ODC&B educational activity in the Boston area during this time. Harvard University, Boston University, Tufts University, and the Forsythe Institute built upon their strong background in cariology and community healthcare to emphasize advanced education in the growing ODC&B area. Boston University, which originally offered only postdoctoral dental education, offered 5-year programs leading to DScD and PhD degrees in ODC&B in addition to its master's degree and certificate options. Tufts later created advanced education programs in ODC&B. Today, Harvard School of Dental Medicine remains closely aligned with the Forsyth Institute, Boston University School of Dentistry, and Tufts University School of Dental Medicine in the area of ODC&B and has a Department of Restorative Dentistry and Biomaterials Sciences, but no postdoctoral program in that department.

Subsequently, programs were established with a focus on dental materials and ODC&B in specific patient populations. Recognizing a need for trained ODC&B

educators and leaders in the Navy, several dentists have been sponsored to civilian programs every year for decades. The Navy continues to pay its ODC&B dental officers Board Certification Equivalency pay when they achieve certification by the American Board of Operative Dentistry, Inc., a policy that was adopted by the Department of Defense in 1988. The Navy also remains closely aligned with the Paffenbarger Institute and the National Institute of Technology.

Programs at The University of Iowa and the University of North Carolina were established to take advantage of their faculty's pre-existing expertise in biomaterials and dental esthetics as well as restorative dentistry.

Internationally, a requirement for advanced training in ODC&B in order for faculty to hold any advanced position, get promoted, or obtain tenure has developed. Consequently, programs have emerged overseas and a very strong interest in US advanced ODC&B programs has developed. This has led to the development of a program at UCLA tailored for overseas residents and which emphasizes maximizing clinical skills. Most other programs have some foreign students enrolled.

As the complexity and breadth of ODC&B has grown to encompass a wide variety of techniques, the demand for more trained faculty and researchers in ODC&B has grown. Most recently, The University of Southern California and the University of Florida have established programs to fill this need.

At the University of Southern California*, "The Herman Ostrow School of Dentistry offers two programs in operative and adhesive dentistry: (1) a 26-month program leading to a Certificate in Advanced Operative and Adhesive Dentistry, and (2) a 26-month combined program leading to a Certificate in Advanced Operative and Adhesive Dentistry and Master of Science in Biomaterials and Digital Dentistry ."* The emphasis here is on the adhesive dentistry aspect of ODC&B. While this aspect is about 50 years old, it is noteworthy that a relatively small subspecialty within the ODC&B field of interest has achieved the status of a named program component.

A department of Restorative Dental Sciences was created at the University of Florida to *"Facilitate clinical research collaborations and growth in the research activities of the department, ensuring its national stature and recognition; to further improve education of the D.M.D. students through enhanced curriculum integration and clinical educational experiences; and improving administrative efficiencies."* Shortly thereafter, an advanced education program in Operative and Esthetic Dentistry was established to *"Maintain the patients oral health, function, and aesthetics*, *with an emphasis on understanding biomaterials, incorporating evidence-based dentistry, and using conventional and digital dentistry."*

In 2023, the 9 Program Directors of the current programs in ODC&B recognized the need for a more coordinated accreditation process for their programs and came together with representative from the Academy of Operative Dentistry and the American Board of Operative Dentistry, Inc. to form the Advanced Operative Educators Alliance (AOEA). This group met in November 2023 to request a CODA

accreditation process for their programs.

In summary, Operative Dentistry, Cariology, and Biomaterials has grown into an expanding area of interest that has supported the establishment and continuing development of 9 advanced programs of postdoctoral dental education. Accreditation would significantly improve the quality of these programs, and dental education in general, by giving the programs common standards to achieve and maintain, improving communication among the programs, and providing an accreditation review process. This would be in the best interests of the profession, dental education, and the public.

C. Provide a list of all the currently operational programs in the dental education area or discipline, including the following information:

a. **Sponsoring institution;**

Sponsoring Institution	Program
Boston University	Esthetics, Digital and Operative Dentistry
The University of California at Los Angeles	Restorative Dentistry
The University of Florida	Graduate Operative and Esthetic Dentistry
Indiana University	Graduate Cariology and Operative Dentistry
The University of Iowa	Operative Advanced Education
University of Michigan	Graduate Restorative Dentistry
University of North Carolina	Graduate Program in Operative Dentistry and Biomaterials
University of Southern California	Advanced Operative and Adhesive Dentistry
Tufts University	Advanced Education in Esthetics and Operative (AEEOD) Dentistry

b. **Name and qualifications of the program director;**

Sponsoring institution	Program Director	
	Name	Qualifications
Boston University	Dr. John I-Cassis	DDS, DMD, CAGS
Indiana University	Dr. Oriana Capin	DDS, MSD, MSD
The University of California at Los Angeles	Dr. Thomas Lee	DDS
The University of Florida	Dr. Patricia Pereira	DDS, PhD
The University of Iowa	Dr. Sandra Guzman-Armstrong	DDS, MS
University of Michigan	Dr. Gisele De Faria Neiva	DDS, MS, MS
University of North Carolina	Dr. Adalberto "Bert" Vasconcellos	DDS, MS, PhD
University of Southern California	Dr. Sillas Duarte, Jr.	DDS, PhD
Tufts University	Dr. Gustavo Mahn Arteaga	DDS, DMD, MS

c. **Number of full-time and part-time faculty (define part-time for each program) and list the academic credentials required for these faculty;**

Sponsoring institution	Faculty	
	Full Time	Part Time
Boston University	3	2
The University of California at Los Angeles	4	4
The University of Florida	9	4
Indiana University	2	0
The University of Iowa	9	1
University of Michigan	5	3
University of North Carolina	4	0
University of Southern California	5	2
Tufts University	1	5

Academic credentials. The sampling of available position openings in Section 4 demonstrates that the minimum credential required to serve on an ODC&B faculty is a DDS or DMD degree. For any consideration for a leadership role, higher academic rank, tenure, or more than entry level salary, an advanced degree at the master's or second doctorate levels is "highly desirable" or required.

d. Curriculum (academic calendars, class schedules, student/resident competencies, syllabi that address scope, depth and complexity of the higher education experience, including course outlines for each course, formal approval or acknowledgment by the parent institution that the courses or curricula in the education area meet the institution's academic requirements for advanced education);

All programs are sponsored by a CODA-accredited university. Formal approval and acknowledgement of the curricula is evidenced by its inclusion in the parent institution's catalog and/or its display on the parent institution's official website. The awarding of degrees by the parent institutions is evidence that the courses or curricula in the education area meet the institution's academic requirements for advanced education.

Program curricula are included in Tab C. Program information. With nine programs of several dozen courses in each, additional information may be found at the websites listed or by contacting the Program Director.

e. **Textbooks and journals, or other learning resources used within the educational program;**

Of the 60 refereed international dental journals in the top quartile, 29 of them are related to aspects of ODC&B with over 2800 scientific articles in 2024 per SCImago Journal Rank. Tab A. SJR Index of Journals- First quartile

Because ODC&B graduates are expected to Teach ODC&B at the pre- and post-doctoral levels, they are expected to be familiar with textbooks at both of those levels, and predoctoral textbooks are included in this list. The remainder are post-doctoral level texts.

Tab D. Journals used in ODC&B programs
Tab E. Textbooks used in ODC&B programs

Other learning resources:

Learning resources vary from program to program but may include:

- Interactions with other internal and external programs
- Online reference libraries like PubMed
- Online lectures and seminars
- Externships
- Local, state, national, and international symposia and meetings
- Visiting professional interactions and lectures

f. **Evidence that the program is a bona fide higher education experience that**

addresses the scope, depth and complexity of higher education, rather than preceptorships or a series of continuing education courses;

- Key evidence for this requirement includes:
  - Required full-time (40 hours per week) commitment of between 2 and 5 years,
  - Award, in most cases, a master's or doctorate degree, and
  - Sponsored by major, accredited universities and their accredited dental schools.
- Secondary evidence:
  - Tuition and other costs to the participant, which range from $40,000 to $60,000 per year,
  - Breadth and depth of the curricula, and
  - Rigorous board certification process for residents who successfully complete their program.

There are no options for part-time participation, advanced standing admission, or credit transfers.

g. Outcomes assessment methods.

Programs use student achievement measures to assess the program's overall performance and success in meeting goals. These include:

- Resident rotation assessments
- Residence didactic grades and clinical assessments
- Resident program assessments
- Faculty assessments of resident performance
- Resident assessments of program effectiveness and faculty
- Periodic resident meetings with program director
- Resident exit surveys/interviews
- Employment rates and acceptance into further post-doctoral programs
- Alumni surveys.

Most residents secure employment prior to completion of their program. Those seeking positions after July are usually employed within a few months. Most go into dental education, but some choose to enter further post-graduate programs. Residents have been accepted into PhD programs in biomaterials and oral biology and Master's programs in preventive dentistry.

Tab C. Program information

h. **minimum length of the program for full-time students/residents;**

Sponsoring institution	Minimum Length of Program	Degree/Certificate
Boston University	2 years	Certificate in Advanced Graduate Study (CAGS)
	+1 year after CAGS	Master of Science in Dentistry in Operative Dentistry
	+3 years after CAGS	Doctor of Science in Dentistry in Operative Dentistry
The University of California at Los Angeles	2 years	Certificate of Advanced Clinical Training
The University of Florida	1 year	Certificate of Advanced Clinical Education
	+2 years	Master of Dental Science, spec in Operative and Esthetic Dentistry
Indiana University	3 years	Master of Science in Dentistry
The University of Iowa	3 years	Master of Oral Science degree and a Certificate in Operative Dentistry
	+3 years	Doctor in Oral Science and Certificate in Operative Dentistry
University of Michigan	3 years	Master of Science Certificate in Advanced Clinical Dentistry Certificate of training in Computerized Dentistry and CAD/CAM
University of North Carolina	3 years	Master of Science in Operative Dentistry and Biomaterials and a Certificate in Operative Dentistry
University of Southern California	2 years	Certificate in Advanced Operative and Adhesive Dentistry
	+2 years	Master's Program in Biomaterials and Digital Dentistry (BMDD)
Tufts University	26 months	Advanced Education in Esthetics and Operative Dentistry (AEEOD) Certificate

Tab C. Program information

i. **certificate and/or degree or other credential awarded upon completion;**

See table above in **3h "Program length for full time students"**

j. number of enrolled individuals per year for at least the past five (5) years; and,

Sponsoring institution	Enrolled Residents (Denotes students at all levels enrolled during year)						
	2018	2019	2020	2021	2022	2023	2024
Boston University	6	6	6	6	6	4	3
Indiana University	12	12	12	12	15	12	13
The University of California at Los Angeles	16	16	16	16	16	24	26
The University of Florida	4	5	3	9	9	12	12
The University of Iowa	8	9	9	9	8	7	9
University of Michigan	21	21	21	19	17	15	17
University of North Carolina	7	11	12	6	5	2	3
University of Southern California	3	4	5	4	3	4	4
Tufts University	7	6	8	8	8	8	8

number of graduates per year for at least the past five (5) years.

Sponsoring institution	Graduates per year						
	2018	2019	2020	2021	2022	2023	2024
Boston University	3	3	3	3	3	4	2
The University of California at Los Angeles	8	8	8	8	8	12	12
The University of Florida	1	0	2	2	1	0	4
Indiana University	3	4	3	2	6	2	6
The University of Iowa	3	2	3	3	3	3	2
University of Michigan	4	7	7	7	7	5	5
University of North Carolina	1	3	4	4	2	5	3

University of Southern California	1	4	5	4	3	2	2
Tufts University	3	1	3	3	2	3	3

If the established education programs have been in existence less than five (5) years, provide information since its founding;

N/A

k. confirmation that the program in the education area would seek voluntary accreditation review, if available;

The Alliance of Advanced Operative Educators was formed in part to seek accreditation for their programs. The responses from program directors of specific programs are shown below.

Sponsoring institution	Would Seek Accreditation
Boston University	Yes
The University of California at Los Angeles	Yes
The University of Florida	Yes
Indiana University	Yes
The University of Iowa	Yes
University of Michigan	Yes
University of North Carolina	Yes
University of Southern California	Yes
Tufts University	Yes

l. programs' recruitment materials (e.g. bulletin, catalogue);

Tab C: Program Information

m. **evidence that the programs in the discipline are legally authorized to operate by the relevant state or government agencies.**

These programs have been functioning in their jurisdictions for as many as 70 years, affiliated with an accredited dental school, affiliated with an accredited institution of higher learning. Most programs are state-operated institutions and funded by the state in which they operate for the benefit of the people of that state, which is evidence that

they are legally authorized to operate by the relevant state agencies. Further, the federal government funds residents to attend ODC&B programs at several of these institutions is evidence they are legally authorized to operate by the federal government.

4. Is there evidence of need and support from the public and professional communities to sustain educational programs in the discipline?

Elements to be addressed:

A. Provide evidence of the ability to perform a robust, meaningful peer-reviewed accreditation process including a sufficient number of peers to conduct reviews at all levels of the Commission, as needed.

Starting with an assumption that all programs will not need preliminary, initial, and final reviews in the first years, and subsequent reviews will be staggered over 7-year cycles, there will be adequate resources to carry out a review process for these programs. The tables in Part 3 of this request show that there are 42 full time and 17 part time faculty members working in 9 programs. There are also 22 graduates of ODC&B programs currently serving in the military who are working in the special interest area. All of these potential peer review resources are members of the Academy of Operative Dentistry. In addition, there are between 27 and 36 new graduates from these programs each year. This does not consider the scores of past graduates of these programs, many of whom are currently serving as AEGD and GPR site visitors and on review committees. This sub-group is composed of ODC&B graduates who have completed AEGDs or GPRs prior to their receiving Master's degree in an ODC&B program.

Site visit resource needs. Taking these 76 primary faculty and military resources, along with past program graduates, as group of peer reviewers for ODC&B programs, there should be a sufficient number of qualified individuals with appropriate credentials to serve as site visitors and on the General Dentistry Review Committee for the accreditation process for ODC&B programs. If 2 or 3 programs require review each year, that would require 6 site visitors (or less than 10% of the primary peer reviewer pool), at most. If a site visit is carried out as part of a dental school site visit, only 1 site visitor would be required.

Review Committee resource needs. As a special interest area of General Dentistry, the General Dentistry Review Committee would provide review services for ODC&B site visits and should require only 1 member from ODC&B.
CODA Staff can provide a more accurate assessment of the adequacy of these resources to meet their needs for peers to conduct reviews at all levels of the Commission.

B. List states where graduates of the dental education area or discipline are recognized for licensure and/or practice.

No state recognizes graduates for licensure and/or practice solely on the basis of this special interest area.

C. Provide evidence of the potential for graduates to obtain employment, including the following information:

1. **Employment placement rates:** Graduates of ODC&B programs are significantly more likely to go into dental education, as shown by data from the past five years:

Institution Program Name	**2018-2023: Total number of students who:**			**Percentage of students who:**
	enrolled in programs	**completed all graduation requirements**	**went into dental education (part-time and full-time combined)**	**went into dental education (part-time and full-time combined)**
Boston University,	16	16	12	**75 %**
Indiana University	21	19	15	**79%**
University of Iowa	43	15	13	**87%**
University of Michigan	37	36	26	**70%**
UNC Adams School of Dentistry	16	13	12	**92%**
USC	23	19	9	**47%**
UCLA	82	55	6	**11%**
Tufts	45	16	7	**50%**

2. **Documentation of employment/practice opportunities/settings.** Number of current job openings in academia:

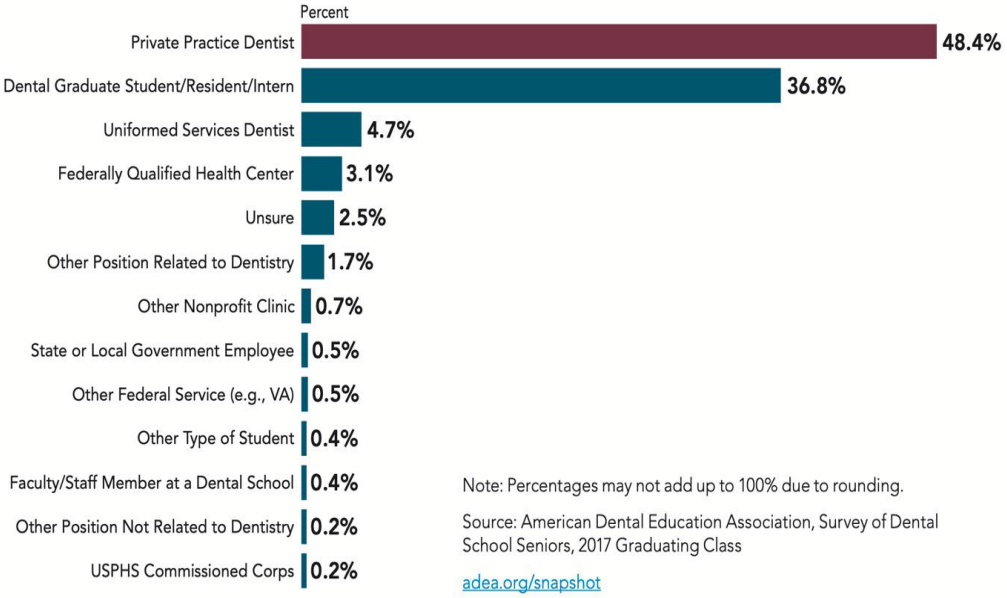
   Higher Ed Jobs website on December 7, 2023 shows 285 open faculty positions and one third of the positions are restorative dentistry positions.
   Source: www.higheredjobs.com, December 7, 2023

3. Evidence of career opportunities, student interest, and an appropriate patient base.

a. **Future career opportunities.** ADEA Policy Brief on faculty in US dental schools: Our Future Faculty
Contreras, O.A., Harrison, S., Stewart, D., Stewart, J. and Valachovic, R.W., 2018:

"The dental faculty landscape is undergoing significant change. With 2015-16 data indicating that over 40% of faculty at academic dental institutions are over 60 years old, creating opportunities and interest in academic dentistry careers has taken on elevated importance. Upon graduation, **only 0.4% of dental school seniors planned to enter academia at a dental school,** even though 58% expressed an interest in teaching at some point in their careers. The time to address the future shortage of dental educators is now. The American Dental Education Association (ADEA) is helping its member institutions address this issue by promoting awareness among predoctoral and allied dental students and advanced education residents and fellows of the value and importance of academic careers."

Figure 2: Intended Primary Professional Activity for New Dental School Graduates



b. Student interest. Applications numbers

Program	2018	2019	2020	2021	2022	2023	2024
			COVID	COVID			
Boston University	33	40	35	30	14	29	22
University of California at Los Angeles	N60	N60	N60	"'60	N60	N60	N60
University of Florida	24	27	23	20	12	20	17
Indiana University	38	31	13	26	11	13	15
The University of Iowa	35	37	20	17	12	12	14
University of Michigan	35	35	26	19	18	15	21
University of North Carolina	26	36	36	36	28	23	21
University of Southern California	34	36	33	29	18	18	13
Tufts University	37	35	39	41	30	37	18

1) **Appropriate patient base.** The primary disease treated by graduates of ODC&B programs is dental caries, which represents a large number of patients:

Evidence of Disease prevalence and burden:

- ***Global burden and inequality of dental caries, 1990 to 2019.*** Wen, P.Y.F., Chen, M.X., Zhong, Y.J., Dong, Q.Q. and Wong, H.M., 2022. *Journal of dental research,* 101(4), pp.392-399.
  "Globally, untreated caries of permanent teeth was the most prevalent health condition in 2019. A reform of the global oral health care system that assumes a life course and preventive approach would help tackle the causes of global burden and inequality of caries."

- ***Oral Health Surveillance Report: Trends in Dental Caries and Sealants, Tooth Retention, and Edentulism, United States, 1999-2004 to 2011-*** 2016.Centers for Disease Control and Prevention. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2019.

"Similar to 1999–2004, about 1 in 4 adults aged 20–64 years and 1 in 6 older adults aged 65 years or older had untreated tooth decay in 2011–2016. Adults Aged 20–64 Years The prevalence of dental caries among adults aged 20–64 years was 90%, which is a slight decrease from 92% during 1999– 2004 (Table 25). Decreases of 2 to 4 percentage points were observed among adults who were younger (aged 20–34 and 35–49 years), male, non-Hispanic white, not-poor, and better educated and who had never or formerly smoked. Overall, the prevalence of untreated tooth decay was 26%."

- **Untreated caries in the US by age.** Oral Health, Centers for Disease Control and Prevention. Morbidity of dental caries in US:
  - Percent of children in US aged 5-19 years with untreated dental caries: 13.2% (2015-2018)
  - Percent of adults in US aged 20-44 with untreated dental caries: 25.9% (2015-2018)
  - Percent of adults in US aged 45-64 with untreated dental caries: 25.3% (2015-2018)
  - Percent of adults in US aged 65 years and over with untreated dental caries: 20.2% (2015-2018)

- ***Update on the prevalence of untreated caries in the US adult population, 2017-2020***. Bashir, N.Z., 2022. The Journal of the American Dental Association, 153(4), pp.300-308. Update on the prevalence of untreated caries in the US adult population, 2017-2020:
  "Conclusions: Untreated caries is present in more than 1 in 5 adults within the US population and is disproportionately distributed among those of lower socioeconomic status.
  Practical Implications: There is a substantial unmet health care need in the US adult population for the prevention and management of untreated caries, and public health efforts should aim particularly to address disease within those subgroups who are at a disproportionately high risk."

2) **Dental Care for the Elderly**.
   - ***Dental Care Among Adults Aged 65 and Over, 2017***
     Kramarow EA. Dental care among adults aged 65 and over, 2017. NCHS Data Brief, no. 337. Hyattsville, MD: National Center for Health Statistics. 2019.
     "In 2017, slightly less than one-third (29.2%) of adults aged 65 and over had dental insurance. The percentage with dental insurance was higher among those aged 65–74 (34.3%) compared with older age groups, and lower among Hispanic adults (17.5%) compared with other race and Hispanic-origin groups. Overall, approximately two-thirds of adults aged 65

and over had a dental visit in the past 12 months. Older adults who were poor (42.7%) or near poor (42.8%) were less likely to have had a dental visit compared with not-poor (74.4%) older adults. Non-Hispanic black (11.2%) and Hispanic (12.3%) adults aged 65 and over were more likely to have unmet need for dental care due to cost compared with non-Hispanic white (6.8%) and non-Hispanic Asian (5.9%) older adults. Dental care is often an overlooked aspect of overall health care among older adults. Regular dental care is recommended for all older adults, even those with full dentures. Because Medicare does not cover routine dental care, older adults may have trouble accessing appropriate dental care."

Summary statement

The discipline of Operative Dentistry, Cariology, and Biomaterials is an ADA-designated area of special interest with decades of scholarship and active research. It boasts numerous widely read journals and textbooks. Graduates of these programs have advanced clinical skills and knowledge in managing complex cases of caries and other diseases and conditions of the teeth. The advanced knowledge in cariology and biomaterials, particularly in adhesive, direct, and indirect restorative materials has significantly differentiated this field from other areas in dentistry. With this advanced training, graduates are also prepared to fill the educator gap in general dentistry.

Dental education currently faces a significant shortage of qualified faculty members, threatening the quality of dental education as a whole. Major areas of dentistry have traditionally been taught by those with advanced postgraduate training, including General Dentistry. ODC&B programs have structured curricula, qualified faculty, and a 60+-year history of training capable future faculty members prepared to teach at both the predoctoral and postgraduate level. These advanced training programs are respected and well-established and grant certificates, Master's, and Doctoral degrees.

These programs deserve to be held to the same professional standards as all other areas of advanced training to ensure the quality of the education programs for the benefit and protection of both the public and residents.

Table 1
Operative Dentistry, Cariology and Biomaterials (ODC&B)
CORE CURRICULA

DOMAINS	LEARNING OBJECTIVES
DENTAL MORPHOLOGY AND OCCLUSION • Knowledge of Dental anatomy and terminology • Psychomotor skills • Reproduce dental morphology using 2-D and 3-D approaches • Biomechanics of the stomatognathic system • Occlusion • Phonetics • Self-reflective metacognition on skills	Must demonstrate advanced knowledge of: • Dental anatomy, terminology, and developmental chronology by demonstrating a mastery of the content of the text *Concise Dental Anatomy and Morphology.* • Using the wax addition technique proficiently to reproduce natural tooth contours and further apply these skills in their future clinical work. Provide skills to use digital technology for self-evaluating their work for its quality. • Using the digital wax-up techniques proficiently to reproduce natural tooth contours and further apply these skills in their future clinical work. Provide skills to use digital technology for self-evaluating their work for its quality. • Being able to reproduce and recreate appropriate occlusion and guidance in benefit of patient dental reconstruction • Being able to converse with peers and dentists, using proper terminology and also critically evaluate the quality of laboratory and clinical work. • The use of self-evaluation and the desire for continued improvement during each session. Must be competent at: • Dental Morphology • Tooth development • Occlusion • Phonetics • 3-Dimensional dental anatomy software and teaching strategies

DENTAL CARIES AND NON-CARIOUS TISSUE DISORDERS ● Knowledge base ● Risk-based diagnosis and management ● Decision-making and preventive non-surgical therapy ● Decision-Making and ● Surgical Therapy ● Evidence-Based Cariology in clinical and Public Health practice	Must show advanced knowledge of: ● Biological, medical, basic and applied clinical sciences of caries and other dental hard tissue disorders ● Risk-based diagnosis of tooth destructive processes. ● Management of caries and other dental hard tissue disorders with an emphasis on long-term primary and secondary preventive care planning and maintenance. ● Collect, interpret and synthesize all relevant information needed to formulate appropriate individualized treatment options ● Management of caries and other dental hard tissue disorders with an emphasis on restorative care planning and maintenance, accompanied by continuing preventive care. Applying the principles of preservation of dental hard tissues as is aligned with other aspects of restorative dentistry, endodontics and prosthodontics, as far as the execution of a restoration or a restorative treatment plan is concerned. Recognizing that the surgical intervention option is only considered when the prevention-alone options are no longer likely to succeed. ● Preventing and controlling dental caries and other dental hard tissue disorders at the group and community levels. This requires comprehensive understanding of epidemiology, health promotion and preventive strategies, their integration in oral health care systems and interaction with other oral disorders, general health, nutrition and the socio-economic context. Must be competent at: ● The mode of action and limitations of emerging methods for the detection, assessment and diagnosis of caries and other dental hard tissue disorders. ● The application of epidemiological methods in dental public health. ● Most updated research related to microbiology, oral biofilms, diet and nutrition, saliva and other host factors, fluoride, other chemotherapeutics, and behavioral/social factors related to caries and other dental hard tissue disorders ● Biochemical events in the biofilm, in saliva and in dental hard tissues ● The mode of action and limitations of emerging methods for the management of caries and other dental hard tissue disorders

BIOMATERIAL

- Amalgam
- Adhesion and Adhesive Systems
- Glass ionomer restoratives
- Dental composite restoratives
- Cements and Adhesive Cements
- Dental light curing
- Dental Composite: Optics, physics and mechanical properties
- Dental Ceramics/Porcelains: types, Optics, physics, and mechanical properties
- Post and Cores
- CAD-CAM Materials
- Implants
- Cast Gold
- Repair vs. replacement of restorations
- Bioactive materials
- Fluoride Releasing Materials

Must show advanced knowledge of:

- Adhesion and adhesive principles
- Materials for adhesion and adhesive cementation
- The enamel and dentin substrate properties and interaction with dental biomaterials
- Incorporation of biomaterials concepts (i.e physical and mechanical properties) in clinical decisions and practice based on the best evidence available
- The indication of biomaterials in clinical situations considering their interactions with the substrates and longevity.
- Proper manipulation, finishing, and clinical application of dental materials

Must be competent at:

- Composition and structure of biomaterials
- interaction of biomaterials and biomaterials surfaces with biofilms
- interaction of biomaterials with the host and biological substrates
- Biocompatibility of biomaterials
- fundamentals of materials science: mechanical, physical, chemical, optical, and thermal properties
- Current approaches to tissue bioengineering
- Test Standards regulatory process and its utility
- in vitro biomaterial test methodologies

ESTHETICS ● Direct and indirect restorative approaches ● Tooth whitening ● Dental photography ● Digital smile design ● Color and shade selection	Must show advanced knowledge of: ● Evidence of techniques and materials of current esthetic restorative dentistry ● Advanced esthetic procedures that include in-office and home tooth whitening treatment, direct resin composites manipulation, contouring, finishing and polishing; diastema closure restoration, polychromatic restorations including restoration of fractured tooth, direct composite realignment, complex class II, direct veneers and peg lateral restorations. ● Indirect resin composite restorative techniques using the CAD-CAM technologies and the associated bonding/cementation systems appropriate for those techniques and materials ● Preparation and cementation of ceramic veneer restorations and advance ● Understanding of the manipulation, techniques and cementation process. ● Diagnosis and treatment planning of conservative esthetic dentistry managing an interdisciplinary approach and understanding the different clinical situations and the integration into the overall patient care ● The evidence in the diagnosis and treatment of discolored teeth and techniques to improve patient esthetics ● Dental intraoral and extraoral photography and its application chairside and using the photography. Integration of photography as a diagnosis and treatment planning tool, as well as to assist with documentation; patient education/communication; laboratory communication and insurance verification. ● Digital smile design concept to help improve the esthetic visualization of patients' problems and to provide insights about solutions. ● Structural evaluation of the intra and extra oral aesthetics to improve communication, visual perception, education and motivation for patients. ● The science of color and shade selection, independently assessing the proper color and shade for a restoration taking into consideration the illumination, environment, and the receiver's eye (subjectivity). Understanding the dimensions of color, hue, value, chroma, and translucency. Must be competent at: ● Advanced knowledge and skills in thorough patient assessment, diagnosis, and personalized esthetic treatment planning with emphasis on minimally-invasive, preventive, and risk-based therapies ● Advanced knowledge and skills on cutting-edge technology such as intra-oral scanning, digital design, CAD-CAM, and 3D printing technologies as a method to deliver minimally-invasive ultra-

	conservative restorative approaches that aims to preserve dental structures ● Emphasis on the importance of ethical considerations for esthetic treatments, balancing patient's wishes with clinical advisable and sustainable focusing on dental procedures that preserve dental structures ● Emphasis on the importance of ethical considerations for esthetic treatments, balancing patient's wishes with clinical advisable and sustainable focusing on dental procedures that preserve dental structures ● Critical analysis of evolving technologies and scientific literature in favor of patient health and needs

INTERPROFESSIONALEDUCATION • Prosthodontics • Occlusion • TMD • Periodontology • Endodontic • Orthodontic • Pharmacology • Radiology • Nutritionist • Social work • Other health care providers	Must show advanced knowledge of: • Identifying the need to bring other health care providers to deliver a personalized comprehensive care to their patients • Inter and Intra disciplinary professional communication with other health care providers • Gathering basic information needed by other disciplines to allow a productive and well-informed consultation when requested Must be competent at: • Interprofessional discipline scope
TEACHINGMETHODS FOR DENTAL EDUCATION	Must show advanced knowledge of: • Developing and delivering a lecture containing learning objectives • Identifying sources of student difficulty and developing strategies to address appropriately. • Providing constructive feedback. • Maintaining a learning environment that is respectful of both patients and students while maintaining patient confidence in student-clinicians. • Fostering student's self-assessment of outcomes of clinical procedures. • Assessing students' performance using valid criteria and standardized methods. Must be competent at: • Dental students learning needs and FERPA federal law • Strategies for instructor calibration • Facilitates the development of critical thinking skills through appropriate questioning strategies

TECHNIQUES • General principles of dental preparations • Direct restorations dental composites (Anterior/posterior) • Indirect restorations (full coverage crown, inlay, onlay, overlay, endo crown, veneers, etc.) • Semi-direct restorations • Post and core build-up • Restorative foundations • Repair vs. replacement • Ceramic restorations	Must show advanced knowledge of: • Treatment planning and prioritizing based on patient's needs and medical condition • Patient autonomy {Informed consent) and patient confidentiality {HIPAA) ethical and legal obligations • Appropriate practices, time management, attitudes, interpersonal and communication skills and ethical behavior in the delivery of patient-centered care. • Demonstrate infection control protocol • Demonstrate technical clinical skills including medical management of patients Must be competent at: • Institutional clinical protocol and philosophy regarding minimally invasive preparations • Department's teaching philosophy and clinic approved materials and supplies
DIGITAL DENTISTRY • Knowledge of CAD/CAM and digital technology • Skills: single- and/or multi-unit tooth- and implant- supported restorations	Must show advanced knowledge of: • The fundamentals of CAD/CAM Technology and digital workflows for the fabrication of tooth- and implant-supported restorations • Indications and contra-indications of CAD/CAM technology and material's selection based on best-evidence available • Performing intraoral scanning for dental restorations • Evaluation of digital models and propose digital designs for dental restorations • Accurately assessing and modifying esthetic and functional outcomes of dental restorations. • Performing self-assessment and adjustment of digital designs and preparations • Proper utilization of cementation procedures and materials for tooth-supported digitally fabricated restorations Must be competent at: • The application of digital technology to assessment, diagnosis, and treatment planning • The application of 3D printing processes in dentistry • The application of the technology for communication and collaboration, while understanding compliance issues in digital transfer of files and patient information

IMPLANT RESTORATIONS	Must show advanced knowledge of: • Case assessment through a screening process for dental implant therapy, identifying health implications, surgical limitations/needs, simple vs complex restorative requirements and discussion of treatment alternatives • Identifying the need for interdisciplinary therapy and referral • Planning surgical and restorative options for implant therapy • mplant provisionalization concept and therapy • Evidence-based literature • Collaborating with other disciplines to provide optimal or enhance soft tissue health and esthetic outcomes Must be competent at: • Emerging evidence and research on implant therapy • Intraoral scanning for implant restoration
RESEARCH • Identify scientific/clinical gap(s) and frame the problem as worthy of study • Search, synthesize and appraise available literature to identified question/gap • Articulate rationale and study purpose • Formulate testable hypotheses and specific aims • Creation of research design to address answerable question(s) • Apply biomaterials knowledge to create research opportunities that solve clinical challenges • Understand various qualitative and quantitative research studies, key concepts of, and hierarchy of generated evidence	Must show advanced knowledge of: • Research ethics and integrity • Searching and evaluating the literature • Understanding the structure of a research paper and recognize the type and level of evidence presented • Principles of the scientific method • The overall process of designing a research study from its inception to its report • Concepts and procedures for sampling, data collection, analysis and reporting of communicating scientific findings in a poster and/or oral presentation format • Organization of research notes and data integrity • Working effectively as a research team member Must be competent at: • Research and statistical methodologies • Writing a persuasive research proposal • Research designs and development of projects • Manuscript preparation and submission process for different format such as; original research, clinical articles, and reviews • Manuscript review process • Good practices in laboratory safety and management • Principles of authorship and copyright

Tab A

Index of Dental Journals

SJR Scimago Journal & Country Rank — Enter Journal Title, ISSN or Publisher Name

https://www.scimagojr.com/journalrank.php

March 2024 **Highlighted blocks indicate journals in the domain of Dentistry with ODC&B focus**

	Title	Type	SJR	H index	Total Docs. (2022)	Total Docs. (3years)	Total Refs. (2022)	Total Cites (3years)	Citable Docs. (3years)	Cites/ Doc. (2years)	Ref./ Doc. (2022)
1	Periodontology 2000		3.457 Q1	140	57	150	7327	2380	148	18.43	128.54
2	International journal of oral science		2.603 Q1	58	54	112	3859	1714	112	16.21	71.46
3	Journal of Clinical Periodontology		2.407 Q1	169	151	452	6584	3297	437	6.57	43.60
4	Journal of Dental Research		1.872 Q1	202	198	569	6996	4175	511	7.72	35.33
5	Clinical Oral Implants Research		1.691 Q1	177	118	398	4822	1909	396	4.21	40.86
6	International Endodontic Journal		1.506 Q1	139	161	562	13173	2856	493	4.57	81.82
7	Journal of Endodontics		1.399 Q1	171	173	729	6405	3233	683	4.02	37.02
8	Clinical Implant Dentistry and Related Research		1.382 Q1	94	88	334	4240	1458	325	3.53	48.18
9	Dental Materials		1.283 Q1	169	205	607	10036	3599	599	5.44	48.96
10	European Journal of Orthodontics		1.272 Q1	93	78	255	1559	747	251	2.80	19.99
11	Oral Oncology		1.271 Q1	128	467	1193	10387	4026	747	3.00	22.24
12	Journal of Periodontology		1.270 Q1	170	212	508	9090	2427	481	4.61	42.88
13	Journal of Cranio-Maxillo-Facial Surgery		1.263 Q1	87	121	568	3973	1824	567	3.02	32.83
14	Journal of Prosthodontics		1.225 Q1	71	193	549	7043	2412	538	4.76	36.49

Title	Type	J, SJR.	_dH m ex --	Total Docs. -- {2022)	Total Docs. -- {3years)	Total Refs. -- {2022)	Total Cites -- {3years)	Citable Docs. (3years)	Cites / Doc. (2years)	Ref. / Doc. {2022)	
15	Journal of Dentistry	1.189 Ql	130	252	588	10253	3016	583	4.83	40.69	
16	Angle Orthodontist	1.167 Ql	96	109	375	2064	1078	324	2.78	18.94	
17	Journal of Prosthetic Dentistry	1.154 Ql	143	700	1026	22547	4237	1005	3.82	32.21	
18	Dental Traumatology	1.103 Ql	90	77	240	2150	691	233	2.74	27.92	
19	American Journal of Orthodontics and Dentofacial	1.062 Ql	137	383	952	9225	1735	566	1.74	24.09	
20	Orthopedics Progress in Orthodontics	0.999 Ql	40	55	139	1944	614	138	4.38	35.35	
21	Journal of Esthetic and Restorative Dentistry	0.996 Ql	67	146	302	6218	1295	300	3.75	42.59	
22	Journal of Prosthodontic Research	0.996 Ql	49	90	243	3359	906	232	3.44	37.32	
23	Journal of Oral Microbiology	0.972 Ql	52	57	162	3466	819	159	4.50	60.81	
24	Orthodontics and Craniofacial Research	0.965 Ql	62	98	238	3417	749	230	3.25	34.8	
25	Caries Research	0.961 Ql	107	34	181	1089	676	173	3.25	32.03	D
26	International Journal of Paediatric Dentistry	0.945 Q1	71	108	296	3189	944	256	3.06	29.53	---
27	International Journal of Oral Implantology	0.937 Ql	54	23	102	1023	267	93	2.20	44.48	
28	Implant Dentistry	0.922 Q1	72	0	81	0	273	75	0.00	0.00	
29	Clinical Oral Investigations	0.910 Ql	94	679	1551	29331	5953	1529	3.82	43.20	
30	International Journal of Oral and Maxillofacial Surgery	0.884 Ql	110	272	705	8092	1946	660	2.50	29.75	

	Title	Type	J, SJR.	m_dH ex	Total Docs. (2022)	Total Docs. (3years)	Total Refs. (2022)	Total Cites (3years)	Citable Docs. (3years)	Cites / Doc. (2years)	Ref. / Doc. (2022)	
31	Molecular Oral Microbiology		0.880 Q1	85	28	80	1556	330	79	3.88	55.57	
32	Journal of Oral Rehabilitation		0.878 Q1	104	125	462	5475	1549	450	3.08	43.80	
33	Journal of Evidence-Based Dental Practice		0.869 Q1	37	80	193	2574	407	77	1.76	32.18	
34	Dentomaxillofacial Radiology		0.868 Q1	82	90	265	1530	907	254	2.92	17.0	
35	BDJ Open		0.859 Q1	10	33	78	1158	237	77	2.87	35.0	D
36	JDR Clinical and Translational Research		0.850 Q1	21	75	148	2526	456	121	3.33	33.6	---
37	Operative Dentistry	Publication of the Academy of Operative Dentistry	0.850 Q1	90	94	296	53	775	284	2.31		
38	Oral Diseases		0.849 Q1	98	621	718	23019	2839	628	4.21	37.07	
39	Japanese Dental Science Review		0.842 Q1	34	34	79	3077	532	77	6.05	90.50	
40	Journal of Periodontal Research		0.816 Q1	93	112	292	5593	1163	288	3.89	49.94	
41	Journal of Advanced Prosthodontics		0.784 Q1	40	38	130	1398	401	130	2.63	36.79	
42	Community Dentistry and Oral Epidemiology		0.782 Q1	109	129	212	4975	612	206	2.77	38.57	
43	Journal of Adhesive Dentistry		0.770 Q1	73	45	191	1750	533	181	2.61	38.89	
44	International Journal of Prosthodontics		0.752 Q1	102	99	270	1483	573	255	2.16	14.98	
45	Journal of Applied Oral Science		0.750 Q1	53	60	254	2290	808	251	2.71	38.17	ca
46	International Journal of Oral and Maxillofacial Implants		0.746 Q1	149	139	460	2805	1130	446	1.94	20.18	

Title	Type	J, SJR.	dH m ex	Total Docs. (2022)	Total Docs. (3years)	Total Refs. (2022)	Total Cites (3years)	Citable Docs. (3years)	Cites / Doc. (2years)	Ref. / Doc. (2022)	
47	Journal of Orofacial Orthopedics	0.742 Q1	48	103	139	3715	291	110	1.65	36.07	
48	BMC Oral Health	0.741 Q1	63	653	1312	25887	4436	1310	3.01	39.64	
49	International Journal of Computerized Dentistry	0.738 Q1	35	37	125	907	327	114	1.43	24.51	
S	International Dental Journal	0.733 Q1	73	162	225	5555	646	188	3.02	34.29	
51	Journal of Prosthodontics	1.225 Q1	71	193	549	7043	2412	538	4.76	36.79	
52	Journal of Public Health Dentistry	0.421 Q2	70	84	150	2420	235	144	1.45	28.81	
53	Journal of Esthetic and Restorative Dentistry	0.996 Q1	67	146	302	6218	1295	300	3.75	42.59	
54	Medicina Oral, Patologia Oral y Cirugia Bucal	0.587 Q2	66	73	325	1780	904	323	2.54	24.38	
55	Dental Materials Journal	0.652 Q1	64	112	443	4175	1214	443	2.64	37.28	
56	Journal of the Canadian Dental Association	0.317 Q3	64	9	40	0	63	40	1.80	0.00	
57	BMC Oral Health	0.741 Q1	63	653	1312	25887	4436	1310	3.01	39.64	PA.i
58	Gerodontology	0.585 Q2	63	84	161	2888	403	146	2.01	34.38	
59	Orthodontics and Craniofacial Research	0.965 Q1	62	98	238	3417	749	230	3.25	34.87	
Brazilian Dental Journal	60	0.482 Q2	59	91	236	2810	433	234	1.35	30.88	

Tab B

The American Board of Operative Dentistry, Inc.
Examination Procedure Guide

Introduction

The American Board of Operative Dentistry, Inc. was created in 1980 by the Academy of Operative Dentistry to elevate the science and practice of Operative Dentistry by conducting examinations to determine the proficiency of dentists who voluntarily apply to the Board for Certification.
A candidate who desires to pursue board certification may submit an application to the Secretary of the board. Current membership in the Academy of Operative Dentistry (AOD) is a prerequisite for application for board eligibility. The Secretary will transmit the application and related documents to the board's Committee on Candidate Eligibility and Credentials for evaluation. When the application is approved, the candidate becomes board eligible and the Secretary will inform the candidate of his/her status.
Board Eligible status begins on the date the application is approved and expires March 1st following the third anniversary of the approval. The candidate has until the expiration date to successfully complete the written examination, and an additional two (2) years (total of 5) to complete all phases of the certification.
The Board Certification process has three examinations, or phases. Upon successfully completing all phases, the candidate achieves the status of board certified. This status is valid for seven (7) years and will be maintained for subsequent seven-year periods so long as he/she remains in good standing as a member of the American Board of Operative Dentistry, Inc. (ABOD) and the Academy of Operative Dentistry (AOD), as outlined in the ABOD by-laws. ABOD will issue a dated certificate designating the successful attainment of board certification, as well as subsequent recertifications.

Examination Information
The examination leading to certification will test the candidate's knowledge of operative dentistry and those allied supporting disciplines that make it possible to practice and teach operative dentistry with a high level of proficiency. The examination consists of three phases: written, clinical, and oral. Successful completion of the written phase is a prerequisite to the clinical and oral phases.

1. **Phase I - Written Examination**

General Information
The written examination is given annually in Chicago in February and at other regional sites and times of the year as examiners' schedules permit. The Chair of the Examination and Certification Committee will inform all board-eligible candidates of the specific sites and dates for all examinations. The written examination contains 400 multiple choice questions. The

examination is given on one day with six hours (two three-hour sessions) allocated to its completion.

Composition of the Written Examination

The written examination questions are based on operative dentistry knowledge, skills, and procedures that an operative dentist should know. The areas listed below are included in the examination and the approximate percentage of questions from each area is:

Operative Dentistry Procedures (Including approximately 3-5% historical in nature) 40%
Dental Materials 15%
Examination, Diagnosis, and Treatment Planning 15%
Esthetics; Occlusion/TMD; Oral Pathology; Oral Medicine; Oral Microbiology; Periodontics; Oral Physiology; Pharmacology; Anatomy 30%

Scoring the Written Examination

The examination is graded on a pass or fail basis. Each question is of equal value and there is no added penalty for incorrect answers. To achieve a passing grade, candidates must answer 70% of the questions correctly. ABOD does not reveal candidates' specific scores.

Fees

The fee for the written examination is $250.00 and is non-refundable. This fee must be paid directly to the Treasurer of the ABOD at least 30 days prior to the date of the examination.

Re-examination

A candidate may take the written examination a maximum of two times. A non- refundable re-examination fee of $250.00 is required for each re-examination. If a candidate fails to pass the written examination twice, a formal request must be presented to the Chair of the Examination Committee and approved by the President of the ABOD before subsequent attempts will be allowed.

2. Phase II - Clinical Examination

General Information

The clinical examination is offered periodically throughout the year, based on candidate request and examiner availability. The examination is performed in a clinical setting designated by the board and evaluated by a minimum of two (2) examiners, although three (3) are usually in attendance. The examination will be three days in length. Clinical photographs will be taken of all clinical procedures; candidates must obtain informed consent for the photos from their patients. These photographs become the property of the American Board of Operative Dentistry, Inc.

Procedures to be Performed

Candidates must perform each of the following operative dentistry restorations and associated laboratory procedures.

1. Conservative amalgam or posterior composite resin restoration. Class II (two- or three-surface). At least one proximal surface must radiographically demonstrate a virgin carious lesion. The tooth to be treated must be in occlusion and the restored proximal surface must demonstrate a proper proximal contact.
2. Extensive amalgam restoration involving cusp replacement and utilizing auxiliary retention techniques. This procedure must be treated as the final restoration for this tooth even though the tooth may eventually receive a crown type restoration. The

tooth to be treated must be in occlusion and the restoration must include at least one proximal contact.

3. Cast gold restoration involving occlusal coverage, restoring at least one cusp, but less than a full crown. The tooth to be treated must be in occlusion and the restoration must include at least one proximal contact.
4. Porcelain restoration - onlay or full crown. The porcelain onlay must be performed on a patient; the full crown, however, may be performed on a patient or manikin (dentoform). CAD/CAM- fabricated onlays are permissible. If you will be performing the porcelain exercise on a manikin (dentoform), you must bring to the test site an anterior PFM crown which has these characteristics; shade Vita A-1, over-contoured at least 0.5 mm on the facial surface, over-contoured interproximally so that tight interproximal contacts will not allow the crown to seat on the prepared manikin tooth without adjustment, and the porcelain must be in the biscuit bake. You will be asked at the examination to adjust the contour, modify shade, add characterization, and glaze as directed by the examiners. The final result should be a crown of such quality that it could be readily cemented in a patient's mouth. You must bring the manikin (dentoform), the prepared tooth, and PFM with you to the examination. You should bring your own stain and glaze kit; a glazing oven will be available at the site.

5. And, either:

- Direct compacted gold restoration Class II, III, IV, or V; or
- Polychromatic resin restoration Class IV. The restoration must involve at least 1/3 of the incisal edge, and must re-establish appropriate proximal and occlusal contacts. It should match the contra-lateral or adjacent teeth and provide an optimal esthetic result.

Patient Procurement and Management

All procedures must be performed on patients except as noted above. Candidates must procure their own patients for this examination. The testing site personnel cannot be responsible for securing patients for candidates. Procurement also includes all expenses related to the transportation, feeding and housing of the patients. Candidates are responsible for the post-operative welfare of the patient, including, but not limited to completion of procedures, correction of unacceptable procedures, and continuation of care. All patients treated must have suitable diagnostic radiographs, medical and dental history, patient chart, a treatment plan signed by the patient, and supportive documentation as needed (such as study models).

Professional Liability Insurance

Candidates must secure and show proof of professional liability insurance covering themselves at the place and time of the examination prior to participating in the clinical examination. Such evidence must be provided to the Secretary of the American Board of Operative Dentistry and the Chair of the Examination Committee. Failure to provide such evidence will prevent participation in the examination.

Infection Control Compliance

All candidates must comply with the most current CDC infection control recommendations and guidelines. However, in all cases, the Infection Control Policies of the testing site will take precedence over the CDC if their guidelines exceed those of the CDC. The Infection Control

Policy of the testing site will be provided to each candidate.

Instruments. Equipment and Materials

Candidates must furnish all instruments, equipment and materials needed to perform the required procedures. Prior to the examination, the candidate will be provided with a list of the major equipment available at the testing site. Candidates may also contact the examination site host to inquire as to the specific nature of the equipment.

Dental Assistants

Dental assistants may be used throughout the examination. However, it is the responsibility of the candidate to obtain dental assistants and to provide for their welfare. The testing site cannot obtain dental assistants for the candidate; however, the testing site host may be able to assist the candidate in finding a dental assistant. All expenses related to the hiring of an assistant are the responsibility of the candidate.

Laboratory Procedures

All laboratory procedures associated with the required operative dentistry restorations must be performed by the candidate. The porcelain crown manikin exercise may have the pre-modified PFM completed by a laboratory technician. All modifications prescribed by the examiners must be done by the candidate at the exam site.

Evaluation Criteria and Scoring

All procedures will be evaluated according to predetermined criteria written by the board, which will be provided to the candidate prior to the examination. Since this is an examination to demonstrate exceptional operative dentistry skills, candidates will be expected to perform the procedures at a superior level in order to pass. Each candidate must pass all components of the examination in order to pass the clinical examination phase of the certification program. The evaluation of each component of the clinical examination will be recorded by the examiners as pass or fail. No numerical scores will be made or available. Candidates will be notified of their results as soon as possible after the examination.

Fees

The minimum fee for the clinical examination is $500.00 and is non-refundable. The fee may be adjusted due to specific examination circumstances and costs. This fee must be paid directly to the Treasurer of the ABOD no later than 30 days prior to the date of the examination.

Re-examination

Candidates who fail any portion of this clinical examination may be required to repeat that portion of the examination or the entire clinical examination, as determined by the examiners. There is no limit as to the number of times the exam can be retaken as long as it is successfully completed within the board eligible time window. Candidates wishing to retake the examination should notify the Chair of the Examination Committee. A re-examination fee determined by the Examination and Certification Committee is required and is non-refundable.

3. Phase III - Oral Examination

General Information

The oral examination is based on cases presented to the board. The questions will be related to the cases and any supporting information or operative-dentistry-related topics as deemed reasonable by the examiners. The candidate should be familiar with the current textbooks and

refereed journals related to operative dentistry and supporting disciplines. The examination will be conducted and evaluated by a minimum of two (2) examiners, although three (3) are usually in attendance, all of whom will have reviewed the cases and accompanying documentation. The oral examination will be recorded for future reference; the recording becomes the property of the American Board of Operative Dentistry, Inc. The completed case documentation will be returned immediately to the candidate on completion of the examination, but should be retained by the candidate for future reference. The oral examination may be scheduled during the three-day clinical examination in such a manner so as not to interfere with the clinical examination. Or, the oral examination may be taken at another site and time other than during the clinical examination at the convenience of the candidate and examiners. However, in all cases, the oral examination must be successfully completed during the board eligible time window. The oral examination will not exceed two hours in length.

General Requirements

All submitted cases must conform to the following general requirements:

1. Only one of the submitted cases may have had the diagnosis and treatment initiated during any formal residency, advanced education, or postgraduate program ever enrolled in by the candidate.
2. All restorative treatment must have been performed by the candidate individually and independently. Supporting laboratory work may be performed by a technician.
3. All documentation required by the Board must be submitted as outlined below.
4. It is preferred that each case submitted have had at least a six month post-treatment follow-up. Exemptions to this requirement may be petitioned in writing to the Chair of the Examination and Certification Committee.

Cases

The cases submitted to the Board shall meet certain requirements. At least two cases must be submitted, although more may be submitted by the candidate as needed to demonstrate the desired level of proficiency. The following requirements for each case shall apply:

1. Each case should be primarily single tooth restorations, although, each case may include fixed and removable prosthesis involving natural teeth and/or implant fixtures.
2. Each case should restore at least 12 teeth not including pontics and artificial replacement thereof.
3. One case should be restored primarily with gold castings of any design and esthetic restorations involving occlusion.
4. One case should be restored primarily with direct restorations (amalgam and resin composite) and minor esthetic restorations.
5. Included in either case should be an appropriate demonstration of the use of direct compacted gold as a restoration.

Submission of Cases

In order to be eligible for the oral examination, candidates must submit all cases to the Chair of the Examination and Certification Committee by a date prior to the examination that is mutually agreeable to the candidate and Chair of the Examination and Certification Committee. Special care (e.g., bubble pack) in packing models prior to mailing is essential.

Documentation of Cases

All patient personal identification information in any documents submitted to the Board must be either removed or made illegible. The Board expects that documentation of the cases will be presented in a professional, organized, neat, and complete fashion, with all pages secured in a binder. The Board does not wish to dictate the exact forms to use or the style of presentation. It does, however, expect that, at a minimum, the following will be included in each presentation.

1. Cover Page
    1. Candidate name and date submitted
    2. List of restorations (by tooth number) placed by the candidate
2. Medical History
    1. Health questionnaire or narrative
    2. Interpretation of the findings
3. Dental History
    1. Questionnaire or narrative of the personal and family history.
    2. Chief complaint
    3. Outline of previous treatment
4. Charting pre- and post-treatment as appropriate
    1. Missing teeth and existing restorations
    2. Diseases and abnormalities
    3. Complete periodontal charting
5. Diagnosis-including but not limited to the following
    1. Occlusal analysis
    2. Periodontal diagnosis
    3. Missing teeth
    4. Malocclusion
    5. Caries
    6. Abrasions
    7. Inadequate restorations
    8. Hypocalcifications
    9. Esthetic concerns
    10. Radiographic Interpretation
6. Treatment Plan - candidate's plan for treatment, a sequence of treatment, candidate's order of treatment
7. Clinical Photographs
   Pre and post-treatment Color prints 4x6 or 5x7
   A minimum of five (5) views are required, which include: Front in occlusion, right in occlusion, left in occlusion,
   full maxillary occlusal, and full mandibular occlusal.
8. Radiographs - duplicates are acceptable if their quality is sufficient to depict the information recorded
    1. Pre-treatment - complete radiographic survey
    2. Post-treatment - if made in the course of routine post-treatment care.

Complete radiographic survey or fewer films are acceptable.

9. Diagnostic Casts - with mounting rings to enable mounting on the candidate's articulator, which should be brought to the oral examination. These should be of high quality, cleanly finished, correctly trimmed, and carefully articulated.
    1. Pre-treatment
    2. Diagnostic wax-up if indicated
    3. Post-treatment
10. Prognosis and Maintenance Plan - six-month post-treatment follow-up
11. A 10 to 15 minute oral presentation of the cases in any format the candidate chooses will begin the oral defense of the cases. Excessive length of this presentation will result in penalties applied to the final score for the examination.

Acceptance of Cases

The submitted cases will be evaluated by the Chair of the Examination and Certification Committee for completeness and compliance with the requirements of the Board. Cases may be found to be acceptable, in which no changes are required; conditionally acceptable, in which additional information or corrections will need to be made or provided by the candidate before it is acceptable; or unacceptable, in which case the candidate will have to submit a new case for the oral examination. There is no practical limit to the number of cases that may be submitted for this examination.

Evaluation Criteria and Scoring

The oral examination will consist of a brief presentation of the cases by the candidate followed by questions related to the background and treatment of the patients presented in the required clinical cases, including factors such as clinical procedures, occlusion, materials, and techniques. In addition, the candidate may be tested upon any disciplines related to operative dentistry that arise during the course of the oral examination. Candidates should demonstrate, through their responses to the inquiries of the examiners, a comprehensive understanding of operative dentistry and related disciplines. The evaluation of the oral examination will be recorded by the examiners as pass or fail. No numerical scores will be made or available. Candidates will be notified of their results as soon as possible after the examination.

Fees

The minimum fee for the oral examination is $250.00 and is non-refundable. The fee may be adjusted due to specific examination circumstances and costs. This fee must be paid directly to the Treasurer of the ABOD when the cases are submitted to the Chair of the Examination and Certification Committee, but no later than 30 days prior to the date of the examination. ABOD now has the ability to accept online credit card payments for examination fees. Please contact the Treasurer for instructions.

Re-examination

Candidates who do not pass this oral examination may have to repeat this phase of the examination. There is no limit as to the number of times this phase can be retaken as long as it is successfully completed within the board eligible time window. However, candidates must submit entirely new cases for reexamination of this oral phase. Candidates wishing to retake this phase of the examination should notify the Chair of the Examination and Certification Committee. A minimum re-examination fee of $250.00 is required and is non-refundable.

Examination Correspondence

All correspondence related to payment of examination fees and general inquiries should be addressed to: The American Board of Operative Dentistry Treasurer:

Kim E. Diefenderfer, DMD, MS, MS
Chairman, Examination & Certification Committee
American Board of Operative Dentistry
Clinical Associate Professor
Division Director, Operative Dentistry
Indiana University School of Dentistry
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Dr. Diefenderfer also serves as Chair of the Examination and Certification Committee for the American Board of Operative Dentistry. Questions relating directly to the examination process or for scheduling exams should be addressed to him.

Tab C
Program Information
Curriculum, catalog

Henry M. Goldman School of Dental Medicine

Boston University Graduate Programs in Operative Dentistry

1. CAGS (Certificate of Advanced Graduate Study) in Esthetic, Digital, and Operative Dentistry
http://www.bu.edu/academics/sdm/programs/operative-dentistry/cags/

The 24-month certificate of advanced graduate study (CAGS) program offers advanced education in the conceptual, biological, and practical components of esthetic, digital, and operative dentistry. The program includes training in basic sciences, biomaterials, lecture presentation, research methods, and the clinical aspects of restorative dentistry, as well as didactic and clinical experience in CAD/CAM technology and other digital techniques for comprehensive dental treatment. Other didactic activities include lectures, seminars, digital laboratory experiences, and preclinical training. The clinical component of the program includes patient care, with an emphasis on diagnosis and treatment planning, the significance of periodontal health, esthetic restoration and cosmetic dentistry, and conventional restorative procedures.

The 24-month Certificate of Advanced Graduate Study (CAGS) in Operative Dentistry program offers advanced education in the conceptual, biological, and practical components of operative and esthetic dentistry. Beneficial to students pursuing teaching careers, the program includes training in basic sciences, biomaterials, lecture presentation, research methods, and the clinical aspects of restorative dentistry.

Initial activities include lectures, seminars, and preclinical training with special emphasis on resin and porcelain systems. The clinical component of the program includes patient care with particular emphasis placed on diagnosis and treatment planning, the significance of periodontal health, esthetic dentistry, and conventional and implant restorative procedures. Students will also have the opportunity to utilize the latest technology of CAD-CAM units and restorations.
**The advanced Operative Dentistry program is not an ADA-recognized specialty.*

Learning Outcomes
Graduates must be:

- Proficient in operative dentistry, esthetic dentistry, and digital dentistry.
- Proficient in patient assessment and diagnosis.
- Competent in designing and in the fabrication of CAD-CAM, fixed, and removable restoratives.

Curriculum

Year 1

- SDM EN 820 Endodontics and Pulpal Therapy for the General Practitioner
- SDM OP 803 Seminar: Operative Dentistry (offered in Year 1 or Year 2)
- SDM OP 806 Digital Dentistry in Prosthodontics and Restorative Science
- SDM OP 807 Preclinical Technique
- SDM OP 912 Clinical Operative Dentistry I
- SDM OP 916 Literature Review–Operative Dentistry (offered in Year 1 or Year 2)
- SDM OS 761 Medical Concerns of the Dental Patient
- SDM OS 828 Anxiety and Pain Control
- SDM OS 831 Head and Neck Anatomy
- SDM PA 801 Oral Pathology
- SDM PE 764 Current Concepts in Periodontology
- SDM PE 827 Applied Dental Pharmacology
- SDM PH 763 Bioethics and Law
- SDM PH 803 Biostatistics
- SDM PR 750 Preclinical Restorative
- SDM PR 761 Occlusion
- SDM PR 810 Case Presentation and Patient Care Conference
- SDM PR 825 Postdoctoral Biomaterials
- SDM PR 828 Esthetic Dentistry
- SDM PR 844 Implantology Literature Review
- SDM PR 845 Implantology Topics
- SDM PR 852 Implantology Topics for the General Practitioner

Year 2

- SDM OP 803 Seminar: Operative Dentistry (offered in Year 1 or Year 2)
- SDM OP 913 Clinical Operative Dentistry II
- SDM OP 916 Literature Review–Operative Dentistry (offered in Year 1 or Year 2)
- SDM PR 810 Case Presentation and Patient Care Conference
- SDM PR 813 Literature Review in General Dentistry

2. MSD (Master of Science in Dentistry) in Esthetic, Digital, and Operative Dentistry
http://www.bu.edu/academics/sdm/programs/operative-dentistry/msd/

The MSD program requires a minimum of one year in addition to the time commitment for the Certificate of Advanced Graduate Study (CAGS) in Esthetic, Digital, and Operative Dentistry and entails a research project, thesis, and thesis defense.

A limited number of candidates are accepted into this DScD program, which takes at least three years to complete in addition to the time commitment for the Certificate of Advanced Graduate Study (CAGS) in Operative Dentistry. Candidates must complete all basic science and

clinical requirements for the CAGS program. The program also requires that candidates complete a major research effort related to operative dentistry. This research is usually conducted in conjunction with research faculty of the University.

MSD Curriculum
In addition to the basic science and clinical requirements for the CAGS in Operative Dentistry program, the following is required:

- SDM OB 830 Research Writing
- SDM OP 991 Research: Operative Dentistry
- SDM OP 992 Research: Operative Dentistry
- SDM OP 993 Research: Operative Dentistry
- SDM PH 803 Biostatistics
- SDM PR 830 Advanced Biomaterials

3. DScD (Doctor of Science in Dentistry) in Esthetic, Digital, and Operative Dentistry
http://www.bu.edu/academics/sdm/programs/operative-dentistry/dscd/

A limited number of candidates are accepted into this DScD program, which takes at least three years in addition to the time commitment for the Certificate of Advanced Graduate Study (CAGS) in Esthetic, Digital, and Operative Dentistry to complete. Candidates must complete all basic science and clinical requirements for the CAGS program. The program also requires that candidates complete a major research effort related to esthetic, digital, and operative dentistry, a doctoral dissertation, and a dissertation defense. This research is usually conducted in conjunction with research faculty of the University. At the discretion of the program director and/or department chair, research students may participate in clinical activities during their research years.

DScD Curriculum

In addition to the basic science and clinical requirements for the CAGS in Operative Dentistry program, the following is required:

- SDM OB 830 Research Writing
- SDM OP 991 Research: Operative Dentistry
- SDM OP 992 Research: Operative Dentistry
- SDM OP 993 Research: Operative Dentistry
- SDM PH 803 Biostatistics
- SDM PR 830 Advanced Biomaterials

Combined Esthetic, Digital, and Operative Dentistry and Dental Public Health
After successfully completing two years of advanced esthetic, digital, and operative dentistry and one year of dental public health, the student receives a CAGS in Esthetic, Digital, and

Operative Dentistry and an MSD (Master of Science in Dentistry) in Dental Public Health. A student who completes two years of advanced esthetic, digital, and operative dentistry and a minimum of three years of dental public health and dissertation receives a CAGS in Esthetic, Digital, and Operative Dentistry and a DScD (Doctor of Science in Dentistry) in Dental Public Health. Indicate your interest in the combined Esthetic, Digital, and Operative Dentistry CAGS and Dental Public Health MSD or DScD in the Questions section. You do not need to submit a separate application for Dental Public Health. A limited number of candidates are accepted into this DScD program, which takes at least three years to complete in addition to the time commitment for the Certificate of Advanced Graduate Study (CAGS) in Operative Dentistry. Candidates must complete all basic science and clinical requirements for the CAGS program. The program also requires that candidates complete a major research effort related to operative
dentistry. This research is usually conducted in conjunction with research faculty of the University.

For additional information, see https://www.bu.edu/academics/sdm/programs/operative-dentistry/

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Restorative Dentistry

Length of program: 2 years
Number of positions: 12 per year
Program Director: Dr. Thomas Lee

The Restorative Dentistry Advanced Clinical Training Program is an intensive two-year program designed to provide nationally- and internationally-trained dentists with clinical training in the broad realm of operative and Restorative Dentistry.

The program is a unique opportunity for those who seek additional Restorative Dentistry experience to supplement what has already been taught through formal dental education. The objective of the program is to take dentists to the next level in patient care and teaching skills while instilling a disciplined, and professional attitude.

Curriculum
The curriculum is highly structured and rigorous; the first-year curriculum includes didactic courses and 240 hours of hands-on training in pre-clinical settings including inlays, onlays, porcelain veneers, ceramic Restorative Dentistry, and conservative cast gold Restorative Dentistry. The emphasis of the second-year curriculum is for trainees to treat patients at the UCLA Venice Dental Center, and to receive teaching experience by working with clinical faculty while observing and assisting other providers for comprehensive patient care.

The goal of this non-CODA-accredited program is to educate trainees the knowledge and skills equivalent to a two-year Operative Dentistry or Restorative Dentistry Program, and to become competent candidates for DDS/DMD or Post-doc accredited programs in USA. A certificate is awarded upon successful completion of the two-year program.

Year 1: Core Knowledge and Skills Development

At the start of the program in early July, trainees immediately begin didactic courses and laboratory sessions in Operative Dentistry, Fixed Prosthodontics, Esthetic Dentistry, and Restorative Dentistry Implant Dentistry.

The majority of the first-year curriculum will be dedicated to technical skills development through a series of Skill Courses, which involve the completion of 100 preparation and

Restorative Dentistry procedures in the UCLA Simulation Laboratory under the mentorship of Restorative Dentistry faculty members. Trainees will learn to become proficient in the following Restorative Dentistry procedures: direct Restorative Dentistry, gold inlays and onlays, 3/4 and 7/8 gold crowns, ceramic inlays and onlays, all ceramic crown and bridge, anterior and posterior porcelain veneers, CAD/CAM Restorative Dentistry, and others.

During the last two-quarters of the first-year curriculum, trainees begin clinical preparatory courses in the Wilson-Jennings-Bloomfield UCLA Venice Dental Center. Here, the specialists will provide training in practice management, material sciences, digital radiology interpretation, treatment planning, dental anesthesia and nitrous sedation, fundamentals of dental implant surgery, implant hands-on lab training, and others. This will ensure that trainees are prepared to provide direct patient care in the second-year curriculum.

Year 2: Excellence in Clinical Dentistry

The emphasis of the second year of the curriculum is direct patient care. Trainees will participate as dental providers to treat patients under the guidance of clinical faculty in UCLA Restorative Dentistry at the Wilson-Jennings-Bloomfield UCLA Venice Dental Center. Through comprehensive treatment planning, trainees provide patient care through the following: caries management by risk assessment, phase one periodontal procedures and minor periodontal surgery, diagnosis of pulpal disease, direct and indirect Restorative Dentistry, fixed dental prostheses, bonded ceramics, anterior and posterior veneers, CAD/CAM scanning, design, milling of lithium disilicate, and zirconia implant Restorative Dentistry. We evaluate the trainees' progress and competency quarterly, and all the clinical requirements must be satisfied by the end of the second year.

Literature review and case presentation sessions are held during the year. Trainees may also have opportunities to be engaged in ongoing research projects in the Restorative Dentistry Section of UCLA School of Dentistry in the Westwood campus.

Another area of focus during the second year is the development of teaching skills. Trainees will be assigned a teaching rotation in the Skill Courses at UCLA's Westwood campus. Those trainees who express additional interest in teaching will be given opportunities to assist in teaching junior and senior dental students alongside faculty members.

At the end of the two-year program, trainees will obtain the knowledge and skills equivalent to a two-year Operative Dentistry or Restorative Dentistry Program in the United States. A UCLA Certificate for Advanced Clinical Training Program is awarded upon successful completion of the
two-year program. A certificate of attendance is awarded upon successful completion of the program. This certificate is not the same as the postgraduate program certificate awarded to full-time international postgraduates in specialty training as a qualification for recognition by the Commission on Dental Accreditation.

Although this is not a CODA-accredited program, some states in the U.S. may allow two year graduates the opportunity for licensure. Please contact individual state dental boards for specific requirements.

Selection Process & Factors

The admissions committee considers the following criteria in its decisions:

Language skills
Content of application
Motivation

Activities/professional experience since graduating from dental school (Those who have been treating patients are desired.)

For additional information, see https://dentistry.ucla.edu/academics-admissions/programs-international-dentists/advanced-clinical-training-programs/Restorative tive Dentistrytive-dentistry

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UF College of Dentistry
UNIVERSITY of FLORIDA

Advanced Education Program in Operative Dentistry
This three-year program consists of a two-year Master of Dental Science Degree with specialization in Operative and Esthetic Dentistry and a certificate of completion in Operative and Esthetic Dentistry at the University of Florida College of Dentistry.

Master's in Operative Dentistry
Prior to enrollment in the Master's program, individuals typically complete one year of the certificate of completion and apply to the graduate school at the University of Florida for the two-year degree program leading to a Master of Dental Science Degree with specialization in Operative and Esthetic Dentistry and a certificate of completion in Operative and Esthetic Dentistry.
Upon successful completion of the program, students will receive a two-year Master of Dental Science Degree with specialization in Operative and Esthetic Dentistry and a certificate of completion in Operative and Esthetic Dentistry.
Tuition is required. A stipend is available.
This program is designed to meet the growing need for future educators in operative dentistry.

Curriculum

The goals of the program are to:
1. Develop a comprehensive knowledge base of biomaterials and clinic sciences as they relate to the art and science of dentistry with a focus on operative and esthetic dentistry.
2. Convey an expansive knowledge base in evidence-based and basic science literature to engage students and to promote lifelong learning.
3. Impart a broad understanding of research methodology to be included and applied to each student's master's level research project.
4. Create a broad understanding of curriculum design, evaluation and assessment, learning styles, active learning techniques, and instructional technology as they relate to didactic, clinical and preclinical teaching in operative and esthetic dentistry.

The first year of the program is focused on the theory and practice of dental education and preparation for clinical patient care. Eligible applicants must hold a DDS or DMD degree from an accredited dental college in the US or its equivalent from foreign institutions.
The focus of the **following two years** expands upon the student's knowledge of cariology, prevention, esthetics, digital dentistry, materials science, research and patient care. In addition, each student will complete a master's level research project.

UF College of Dentistry
UNIVERSITY of FLORIDA

For further information see: https://admissions.dental.ufl.edu/advanced-graduate-programs/operative-dentistry/

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Master's in science in Dentistry (MSD) Degree

Requirements for the M.S.D. degree are as follows:

Course Work

The student must complete the required number of credit hours of course work specific to the graduate program. A minimum of 6 credit hours must be earned toward a minor subject outside the major concentration.

Other elective subjects may be selected, based on the student's educational objectives. A total of 6 credit hours must be in research; however, additional research credit cannot be used toward fulfillment of requirements for the degree.

All students enrolled in the IU School of Dentistry's M.S.D. program are required to submit a research proposal to the IUSD Graduate Student Research Committee (GSRC) prior to beginning the experimental or data collection phase of their research projects. Prior to this, the student's research committee must review and approve the proposal. Preliminary review of the literature, selection of a research topic and submission of the research proposal to the GSRC should ordinarily be completed by the end of the first spring semester of the program. It is the goal of the proposal review process to provide qualified feedback to the principal investigator and student on the scientific merit of the project. The school has a vested interest in encouraging students and faculty to prepare well-justified and competitive proposals, research publications, and both internal and external grant applications related to their work. A secondary goal of this process is to improve the external funding support the school receives by improving the quality of student pilot projects that can provide preliminary data for external grant proposals from principal investigators.
The IUSD GSRC consists of members of the faculty who are active in research and are willing to provide significant guidance in reviewing research proposals.

Each student must present at the IUSD Research Day prior to graduation.

Each student must satisfactorily complete the project and submit an approved thesis or journal manuscript.

Core Courses

All graduate students enrolled in dental school programs (including M.S. degree candidates) are required to complete six core courses, as designated by the IU School of Dentistry Graduate Program. These courses are:

- G907 Clinical Oral Pathology Conference I
- G909 Clinical Oral Pathology Conference II
- G910 Seminar (Biostatistics)
- G948 Advanced Radiology
- R955 Graduate Oral Biology I
- R980 Research Methodology
- The core courses are in addition to courses that are required by individual departments.
- Required courses must be taken in the proper sequence, as specified by the student's committee. In most departments there are additional program requirements designed to meet such criteria as may be specified by the several dental specialty boards and the American Dental Association Commission on Dental Accreditation Standards for Advanced Specialty Education Programs. The final credit requirement, including elective course work, is determined by each student's graduate committee and is usually dependent upon the student's previous academic accomplishments.

Grades

- Failure to maintain a minimum grade point average of 3.0 (on a 4.0 scale) in either the major or minor concentration and/or failure to demonstrate evidence of continuing professional growth may subject the student to dismissal from the program.

Examinations

- The members of the student's faculty advisory committee (previously described) will conduct the qualifying (oral and written comprehensive) examination, which essentially covers the candidate's field of study. The exact format of the examination will be determined by the individual faculty advisory committee and described in an educational agreement signed by the student and department chairperson at the beginning of the program. Successful completion of the qualifying examination is required in order to proceed to completion of the thesis or journal manuscript research, defense of the thesis or journal manuscript, and awarding of the degree. In accordance with University Graduate School requirements, students who fail the qualifying examination are normally allowed only one retake. The student must complete the qualifying examination six months prior to the intended date of graduation. The student is eligible but not required to take the examination upon the completion of one-half of the didactic requirements.

For additional information, see: https://bulletins.iu.edu/iu/dentistry/2018-2019/graduate/masters/degree-req.shtml?_gl=1*1ox5pds*_ga*MTM3NTU4Mjg0MC4xNzA5OTIzMTIx*_ga_61CH0D2DQW*MTcwOTkyMzEyMC4xLjAuMTcwOTkyMzEyMC42MC4wLjA.

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The University of Iowa College of Dentistry and Dental Clinics' Department of Operative Dentistry offers a 36-month Advanced Education Program leading to a Master of Oral Science degree and a Certificate in Operative Dentistry.

The strength of the Department of Operative Dentistry lies in providing our graduate students the information and skills necessary for their success in the academic world within a balanced educational experience and supportive environment. We have very knowledgeable faculty, excellent laboratory research facilities, and an enriching patient care clinic to provide the best for our students.

Goals

The Operative Dentistry Advanced Education Program structure has been designed to provide advanced experiences and training in the areas of Operative Dentistry, Cariology and Biomaterials with emphasis in risk-based diagnosis, prevention and tooth-preserving management.

- The first of these is the development and refinement of skills in advanced operative dentistry techniques with special emphasis on the biological basis of caries disease management, prevention and tooth preserving Restorative Dentistry. Residents gain significant clinical experience in comprehensive diagnosis and management of patients based on risk assessment Restorative Dentistry within the interdisciplinary and interprofessional approach at the College of Dentistry and Dental Clinics and the university. Students will have the opportunity to learn the latest evidence, critical thinking and clinical decision-making.
- Secondly, the program provides the opportunity to gain experience in teaching and research in preparation for an academic career in Operative Dentistry. Courses in education and research methodologies are available for the student as well as student teaching and mentoring experiences. All students will develop a research protocol, conduct research, and report and defend their findings in the form of a thesis.
- Finally, the program provides the opportunity for clinical case development and preparation for students interested in board certification in Operative Dentistry from the Academy of Operative Dentistry.

Curriculum

The MS in Oral Science requires a minimum of 30 credit hours of graduate-level credit and includes completion of required and elective courses, preparation and defense of a thesis based on original research, and satisfactory completion of written and oral examinations.

The Operative Dentistry Certificate program is completed in conjunction with the Master's of Oral Science, providing a sound foundation for the clinical practice and teaching of Operative Dentistry. Students are required to complete all clinical and didactic courses in the discipline of Operative Dentistry and teaching requirements, which meets the educational requirements for application to take board certification examinations of the American Board of Operative Dentistry.
Our Mission

To provide advanced education to dental graduates using the best available evidence to achieve and maintain optimal oral health, comfort, function and esthetics though risk-based diagnosis, prevention and tooth-preserving management of caries and non-carious diseases and disorders of the teeth.

A core curriculum has been developed to provide an overview of the main domains pertinent to the area of advanced education in operative dentistry, cariology and dental materials. The goal is to provide a framework to base the educational experience of our residents. The Core curriculum has 10 domains: 1). Dental anatomy; 2) Dental caries and non-carious tissue disorders; 3) Biomaterials; 4) Esthetics; 5) Interprofessional education; 6) Teaching methods for dental education; 7) Techniques; 8) CAD-CAM technology; 9) Single implant Restorative Dentistry; and 10) Research.

First Year Courses

Summer Session

OPER:5127:CERT	Introduction to Operative Dentistry Advanced Education
ORSC:5210:0001	Dental Science Research Methodology

Fall Session

OPER:5126:CERT	Operative Dentistry Seminar
OPER:5234:CERT	Selected Applications in Operative Dentistry
OPER:5140:CERT	Operative Dentistry Advanced Clinic
OPER:5245:CERT	Pre-Clinical Teaching

DPH:5001:CERT	Literature Review Methods Dental Public Health
DPH:6017:CERT	Teaching Methodology & Evaluation (alternate years)
ORSC:5200:0001	Seminar in Dental Research
ORSC:5212:0001	Statistical Methods for Dental Research
Spring Session	
OPER:5126:CERT	Operative Dentistry Seminar
OPER:5234:CERT	Selected Applications in Oper Dent
OPER:5140:CERT	Operative Dentistry Advanced Clinic
OPER:5245:CERT	Pre-Clinical Teaching
DPH:6002:0001	Research Protocol Seminar
ORSC:5200:CERT	Seminar in Dental Research
ORSC:5215:0001	Research Design in Dentistry
PROS:5730:CERT	Advanced Implant Techniques

Second Year Courses

Summer Session	
OPER:5140:CERT	Operative Dentistry Advanced Clinic
OPER:5245:CERT	Pre-Clinical Teaching
ORSC:5600	Research in Oral Science
Fall Session	
OPER:6224:0001	Graduate Restorative Dentistry Materials (alternate years)
OPER:5126:CERT	Operative Dentistry Seminar
OPER:5234:CERT	Selected Applications in Operative Dentistry
OPER:5140:CERT	Operative Dentistry Advanced Clinic
OPER:6246:CERT	Clinical Teaching
DPH:6017:0001	Teaching Methodology & Evaluation (alternate years)
ORSC:5200:CERT	Seminar in Dental Research
ORSC:5280:0001	Advanced Dental Therapeutics
ORSC:5300:CERT (alt.years)	Dental Management of Patients with Complex Medical History
ORSC:5600	Research in Oral Science
Spring Session	
OPER:5126:CERT	Operative Dentistry Seminar
OPER:5234:CERT	Selected Applications in Oper Dent
OPER:5140:CERT	Operative Dentistry Advanced Clinic
OPER:6246:CERT	Clinical Teaching
ORSC:5200:0001	Seminar in Dental Research
OPER:5240	Advanced Operative Dental Implants & Digital Dentistry
ORSC:5240:0001	Patho Pulp-Dentin Complex (alternate years)
ORSC:5250:0001	Cariology/Immunology (alternate years)
ORSC:5600	Research in Oral Science

Third Year Courses

Summer Session

OPER:5140:CERT	Operative Dentistry Advanced Clinic
OPER:6246:CERT	Clinical Teaching
ORSC:5600	Research in Oral Science

Fall Courses

OPER:6224:0001	Graduate Restorative Dentistry Materials (alternate years)
OPER:5126:CERT	Operative Dentistry Seminar
OPER:5140:CERT	Operative Dentistry Advanced Clinic
OPER:6246:CERT	Clinical Teaching
GRAD:6217:0015	Seminar in College Teaching
ORSC:5300	Dental Management of Patients with Complex Medical History (alt years)
ORSC:5600	Research in Oral Science

Spring Session

OPER:5126:CERT	Operative Dentistry Seminar
OPER:5140:CERT	Operative Dentistry Advanced Clinic
OPER:6246:CERT	Clinical Teaching
ORSC:5200:0001	Seminar in Dental Research
ORSC:5240:0001	Patho Pulp-Dentin Complex (alternate years)
ORSC:5250:0001	Cariology/Immunology (alternate years)
ORSC:5600	Research in Oral Science

Source:
https://dentistry.uiowa.edu/oper-adv-ed-curr#spring-session

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University of Michigan School of Dentistry: Graduate Restorative Dentistry Program (MS)

OVERVIEW

The Graduate Restorative Dentistry program provides advanced clinical training in direct and indirect esthetic Restorative Dentistry crown & bridge and implant rehabilitation, affording comprehensive patient management experiences.

The evidence-based curriculum has recently been revised to incorporate the most current advancements in digital dentistry, chairside CAD/CAM technology and smile design.

Successful graduates are well qualified for positions as full-time clinical faculty in a dental school as an educator or administrator in both pre-doctoral comprehensive care and graduate general dentistry programs.

Students completing the three-year academic, clinical and research requirements receive:

- Master of Science degree from the Rackham School of Graduate Studies
- Certificate of program completion from the University of Michigan School of Dentistry
- Certificate of training completion in Computerized Dentistry and CAD/CAM

Restorative Dentistry is not a recognized dental specialty; therefore, the University of Michigan School of Dentistry Graduate Program in Restorative Dentistry is not accredited by the American Dental Association's Commission on Dental Accreditation (CODA).

REQUIREMENTS

- DDS or BDS degree or equivalent
- Application through Rackham
- 3 letters of recommendation
- Educational Credential Evaluators (ECE) Report for any dental coursework completed outside of the US/Canada
- iBT TOEFL score of 84 or higher and less than 2 years old (international applicants)

CURRICULUM

Year 1

Summer Term G0

Restora	550	Review of Restorative Dentistry	2
Restora	551	Review of Restorative Dentistry lab	3
Perio	786	Periodontal Therapy	2
Restora	560	Comprehensive Tx. Planning	2
		Total credits	**9**

Fall Term G1

DENTED	613	Head & Neck Anatomy	1.5
Perio	786	Periodontal Therapy	2
Oral Diag	662	Radiology	2
Restora	742	Restorative Clinic	1
Restora	747	Clinical Evaluation in Restorative Dent	2
Restora	570	Principles of Occlusion	2
Restora	575	Digital Ceramic Dentistry	2
Restora	743	Thesis investigation - topic development	1
Restora	510	Basics of Intra-Oral Photography	1
		Total credits	**14.5**

Winter Term G1

DENTED	561	Dental Education	1
DENTED	562	Dent Ed Teaching Practicum	1
DENTED	612	Molecular Biology	1
Restora	860	Neurophysiology and Occlusion	1
Restora	585	Advanced Direct Restorations	2
Restora	580	Chairside CAD/CAM Dentistry	2
Restora	742	Restorative Clinic	2
Restora	743	Thesis investigation - proposal/committee	1
		Total credits	**11**

Spring/Summer Term G1

Restora	742	Restorative Clinic	2
Restora	565	Introduction to Implant Dentistry	1
Restora	590	Advanced Clinical Cariology	1
Restora	595	High Strength Digital Restorations	1
Restora	729	Removable Complete Dentures	2
Restora	743	Thesis investigation - data collection	2
Restora	515	Intra-Oral Photography 1	2
		Total credits	**11**

Year 2

Fall Term G2

DENTED	614	Oral Pathology		1
Ortho	764	Treatment of the compromised patient		1
Restora	656	Dental Biomaterials Science	2	
Restora	690	Advanced Cariology Seminars	1	
Restora	695	Comprehensive Restorative Concepts	2	
Restora	742	Restorative Clinic	3	
Restora	619	Preclinic/Clinic Teaching	1	
Restora	743	Thesis investigation - data collection	2	
		Total credits		**13**

Winter Term G2

Ortho	764	Treatment of the compromised patient		1
Restora	680	Advanced Chairside CAD/CAM Dentistry	2	
Restora	742	Restorative Clinic	3	
Restora	620	Preclinic/Clinic Teaching	1	
Restora	743	Thesis investigation - data collection	3	
Restora	685	Advanced Direct Restorations 2	2	
		Total credits		**12**

Spring/Summer Term G2

Restora	848	Advanced Restorative Topics	2	
Restora	742	Restorative Clinic	4	
Restora	621	Preclinic/Clinic Teaching	1	
Restora	743	Thesis investigation - data/manuscript	3	
Restora	785	Advanced Direct Restorations 3	2	
		Total credits		**12**

Year 3

Fall Term G3

Restora	742	Restorative Clinic	4	
Restora	743	Thesis investigation – manuscript	4	
Restora	719	Preclinic/Clinic Teaching	1	
Restora	615	Intra-Oral Photography 2	2	
		Total credits		**11**

Winter Term G3

Restora	742	Restorative Clinic	5
Restora	743	Thesis investigation - Thesis defense 4	
Restora	801	Data Analysis SPSS	1
		Total credits	**10**

Spring Term G3

Restora	742	Restorative Clinic	5
Restora	743	Thesis investigation - Thesis defense 4	
		Total credits	**9**

For additional information, see: https://dent.umich.edu/education/graduate-restorative-dentistry-program-ms

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Graduate Program in Operative Dentistry and Biomaterials

The UNC Adams School of Dentistry offers a three-year graduate program designed to provide training in three major areas – teaching, patient care, and research – leading to a Master of Science degree in Operative Dentistry and Biomaterials and a Certificate in Operative Dentistry.

Our program prepares graduates for a successful career in dental education and other areas through the use of contemporary operative dentistry skills and technologies. The UNC Operative Dentistry Department has a strong tradition in the field and has published seven editions of The Sturdevant's Art and Science of Operative Dentistry, which traditionally has been the world's top-selling dental textbook, and its faculty members have received numerous teaching awards throughout their careers.

Graduates also have the potential for careers such as clinical or technical research directors in companies with a dental emphasis, consultants to dental corporations, insurance providers, public health policy organizations, professional dental societies, philanthropic dental research, and education funding agencies.

The Graduate Program in Operative Dentistry and Biomaterials curriculum includes core courses and discipline-specific courses. The program emphasizes the development of expertise in a variety of topics including:

- Caries risk assessment and management
- Treatment planning and smile design
- Conservative operative dentistry
- Biomaterials
- Diastema closure
- Porcelain veneers
- Tooth whitening
- CAD/CAM restorations
- Restoration of fractured anterior teeth
- Implant planning and restoration
- Digital dentistry

In addition, graduates can enroll in a wide range of elective courses based on their research and career interests, including courses in public health, epidemiology, clinical research methods, material sciences, oral biology, biostatistics, and education.

- Graduates are required to complete the didactic and research components of the master's degree prior to graduation.
- The design of the program is consistent with the stated objectives in the Curriculum Guidelines for Postdoctoral Operative Dentistry (J Treatment Planning and Smile Design)
- Conservative operative dentistry
- Biomaterials
- Diastema closure
- Porcelain veneers
- Tooth whitening
- CAD/CAM restorations
- Restoration of fractured anterior teeth
- Implant planning and restoration
- Digital dentistry
- In addition, graduates can enroll in a wide range of elective courses based on their research and career interests, including courses in public health, epidemiology, clinical research methods, material sciences, oral biology, biostatistics, and education.
- Graduates are required to complete the didactic and research components of the master's degree prior to graduation.

The design of the program is consistent with the stated objectives in the Curriculum Guidelines for Postdoctoral Operative Dentistry *(J Dent Educ 1993 Nov;57(11):832-6).*

Admissions Requirements

All prospective students must hold a DDS, DMD or equivalent degree from a dental school. Admission criteria are applied equally to all applicants regardless of race, sex, color, national origin or religion. Minority students are encouraged to apply.

Curriculum

The program is focused on three major areas:

Teaching Component

Graduates participate as graduate teaching assistants in didactic courses and supervise predoctoral students in preclinical and clinical activities.

Clinical Component

The curriculum includes topics such as treatment planning and smile design, conservative operative dentistry, biomaterials, diastema closure, porcelain veneers, tooth whitening, CAD/CAM restorations, restoration of fractured anterior teeth, implant planning and restoration, and digital dentistry.

Research Component

Graduates are expected to participate in research oral presentations and peer study sections during the 1st year of residency, and to present their thesis research in the Adams School of Dentistry's Research Day during the third year of residency. Preparation of a master's thesis and an oral defense are required. Students will be encouraged to prepare abstracts and/or table clinics for scientific or educational meetings, as appropriate.

Graduate-level Courses

Code	Title	Hours
OPER 701	Operative Dentistry Seminar II	1
OPER 702	Operative Literature Review I	1
OPER 704	Operative Clinical Seminar A	1
OPER 731	Cariology	1
OPER 732	Introduction to Operative Dentistry	3
OPER 736	Graduate Dental Biomaterials II	3
OPER 790	Operative Dentistry Clinic II	2-6
OPER 810	Applied Biomaterials Research	3
OPER 993	Master's Research and Thesis	3

OPER 701. Operative Dentistry Seminar II. 1 Credits.

(Aesthetic and Adhesive Dentistry.) In this seminar, graduate students will learn the scientific principles and clinical techniques involved in dental aesthetics and adhesive restorations. Students may be required to develop a case presentation for this seminar.

Repeat Rules: May be repeated for credit. 2 total credits. 2 total completions.

Grading Status: Letter grade.

OPER 701. Operative Dentistry Seminar II. 1 Credits.

(Aesthetic and Adhesive Dentistry.) In this seminar, graduate students will learn the scientific principles and clinical techniques involved in dental aesthetics and adhesive restorations. Students may be required to develop a case presentation for this seminar.

Repeat Rules: May be repeated for credit. 2 total credits. 2 total completions.

Grading Status: Letter grade.

OPER 702. Operative Literature Review I. 1 Credits.
This is a weekly seminar offering a forum for presentation and discussion of relevant scientific papers on various operative dentistry related topics. Typically, a resident or faculty member presents one or more relevant papers, which is followed by a critical analysis of the study and discussion of the topic.
Repeat Rules: May be repeated for credit. 4 total credits. 4 total completions.
Grading Status: Letter grade.

OPER 704. Operative Clinical Seminar A. 1 Credits.
This seminar will involve a series of presentations where the student will present clinical cases resolved in the graduate clinic.
Repeat Rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading Status: Letter grade.

OPER 704. Operative Clinical Seminar A. 1 Credits.
This seminar will involve a series of presentations where the student will present clinical cases resolved in the graduate clinic.
Repeat Rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading Status: Letter grade.

OPER 731. Cariology. 1 Credits.
Discusses specific topics related to Cariology. Students will provide care in clinic identifying and treating patients based on caries risk assessment. Seminar formats include lectures, discussions, literature reviews, and practical (hands-on) exercises. Students must present a clinical case discussing alternative treatment based on the patient's caries risk assessment.
Repeat Rules: May be repeated for credit.
Grading Status: Letter grade.

OPER 732. Introduction to Operative Dentistry. 3 Credits.
Provides students with a broad introduction to key Operative Dentistry concepts. Students will be exposed to a wide variety of topics, including intensive training in direct restorations, dental photography, fabrication of diagnostic casts and implant stents. Prepares incoming graduate students for clinical patient care and teaching in predoctoral courses and clinics.
Repeat Rules: May be repeated for credit.
Grading Status: Letter grade.

OPER 736. Graduate Dental Biomaterials II. 3 Credits.
Repeat Rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading Status: Letter grade.

OPER 790. Operative Dentistry Clinic II. 2-6 Credits.
(Patient treatment.) Primary focus is on patients requiring more advanced considerations for operative dentistry treatment planning and/or procedures. There will be a strong focus on aesthetic dentistry, prevention, and 'medical management' of caries, and the use of advanced technologies to provide operative dentistry treatment.
Repeat Rules: May be repeated for credit.
Grading Status: Letter grade.
OPER 810. Applied Biomaterials Research. 3 Credits.
This course involves application of the principles of in-vitro testing of dental materials. Students will be required to prepare, subject them to specified testing, and collect data.
Repeat Rules: May be repeated for credit. 3 total credits. 10 total completions.
Grading Status: Letter grade.
OPER 992. Master's (Non-Thesis). 3 Credits.
Individual research under the direction of a mentor with the intention of publication. Completion of a manuscript and submission is a requirement for an MS degree.
Repeat Rules: May be repeated for credit.
OPER 993. Master's Research and Thesis. 3 Credits.
Individual research under the direction of a mentor and committee. Completion of a thesis for an MS degree is required.
Repeat Rules: May be repeated for credit.

For additional information see: https://dentistry.unc.edu/advanced-dental-education/operative-biomaterials/

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Herman Ostrow School of Dentistry of USC

Advanced Operative and Adhesive Dentistry
ADVANCED EDUCATION PROGRAM

Ostrow offers a 26-month program leading to a certificate in advanced operative and adhesive dentistry to provide students with in-depth scientific knowledge and clinical experience in this specialty, including:

- Advanced esthetic treatment planning
- Cariology
- Dental biomaterials
- Digital dentistry (CAD/CAM)
- Esthetic and functional rehabilitation
- Implant dentistry
- Minimally invasive adhesive dentistry

In addition, the program offers students teaching experience through assisting the learning activities of the doctor of dental surgery program.

Biomaterials research is an integral part of the curriculum of the program. Students enrolled in the certificate in operative and adhesive dentistry program have an opportunity to apply for the Master of Science in Biomaterials and Digital Dentistry.

Clinical, research and teaching experiences prepare graduates for future academic careers in dental education and private practice, as well as career options in dental-related public and private organizations.

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Advanced Education in Esthetics and Operative (AEEOD) Dentistry

The Advanced Education in Esthetics and Operative Dentistry (AEEOD) Certificate Program allows students to have direct interaction with most dental specialties, including Prosthodontics, Periodontics, Endodontics and Orthodontics. Therefore, it contributes in providing a multidisciplinary approach in the diagnosis and management of patients' esthetics, restorative and functional needs.

During their clinical curriculum, students are trained to provide comprehensive dental care, utilizing the latest technologies available to dental professionals. Located in state-of the-art facilities and using all aspects of digital dentistry from intraoral scanners, 3D printers, digitally guided implant planning to digital design and milled restorations.

Students' achievements include simple to more extensive smile reconstruction including teeth whitening, direct composite restorations, porcelain laminate veneers, ceramic crowns, computer-aided design/computer-aided manufacturing (CAD/CAM) restorations, and implant-supported crowns. The program exposes students to all specialty phases of dentistry and medicine as they apply to esthetics.

During their didactic curriculum, students attend prosthodontics-oriented classes such as Digital Dentistry, Biomaterials, Temporomandibular Joint Disorders (TMJ), and Implantology. Students also attend Esthetics-oriented classes such as Advanced Operative and Esthetic Dentistry Treatment Planning Course, Comprehensive Evidence-Based Esthetic Dentistry Literature Review, and multi-disciplinary oriented lectures.

Students learn treatment planning and record-keeping techniques that they apply to each patient. They are required to present such information in roundtable discussions with faculty. The process enables students to develop effective management and administrative skills. Students also teach undergraduate students in Operative Dentistry. First year residents attend preclinical lectures and assist undergraduate students in their operative training. Second year residents provide clinical supervision in Operative Dentistry to undergraduate students in Tufts pre-doctoral clinic.

The two-year AEEOD Certificate Program starts on July 1 and ends June 30 of the second year of the program. The first three months of the program are dedicated to pre-clinical training so that students understand the techniques and treatment procedures during their clinical curriculum.

A Master of Science degree may be combined with the Certificate program upon approval by the program director. Successful completion of a combined Advanced Education-Master of Science program is expected to require a minimum of 36 months (specific conditions apply).

Course of Study

Some of the courses including in the AEEOD curriculum are the following:

Advanced Education Courses

- Biostatistics
- Oral & Maxillofacial Radiology
- Management of the Medically Compromised Dental Patient
- Dental Pharmacology
- Complex Case Management Seminar
- Overview of TMD & Orofacial Pain

Departmental Courses

- Advanced Esthetic Treatment Planning Seminar
- Comprehensive Literature Review
- Advanced Operative and Esthetic Dentistry Course
- Preclinical Operative and Esthetic Dentistry Course
- Digital Dentistry
- Advanced Prosthodontic Treatment Planning Seminar
- Head & Neck Anatomy for Prosthodontics
- Biomaterials

For more information, see: https://dental.tufts.edu/academics-admissions/postgraduate-programs/advanced-education-esthetics-and-operative-dentistry

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Tab D
Selected Journals for ODC&B

This list represents journals commonly referenced by advanced education programs. There are at least 29 refereed journals related to aspects of Operative Dentistry, Cariology and Biomaterials publishing over 2800 scientific articles in 2022. Six of these journals are ranked in the top 20 dental journals in the world based on citations by SCImago Journal Rank.
Note that the journal of the Academy of Operative Dentistry is ranked 37th internationally.

SCImago Rank	Journal
2	International Journal of Oral Science
4	Journal of Dental Research
5	Clinical Oral Implants Research
8	Clinical Implant Dentistry and Related Research
9	Dental Materials
18	Dental Traumatology
21	Journal of Esthetic and Restorative Dentistry
23	Journal of Oral Microbiology
25	Caries Research
27	International Journal of Oral Implantology
28	Implant Dentistry
32	Journal of Oral Rehabilitation
33	Journal of Evidence Based Dental Practice
37	Operative Dentistry
43	Journal of Adhesive Dentistry
49	International Journal of Computerized Dentistry
55	Dental Materials Journal
56	International Journal of Periodontics and Restorative Dentistry
73	Journal of Dental Education
98	Clinical, Cosmetic and Investigational Dentistry
106	Journal of Oral Implantology
121	Journal of Conservative Dentistry
123	Journal of Lasers in Medical Sciences
125	Applied Adhesion Dentistry
131	Dental Research Journal
142	Evidence-Based Dentistry
151	Fluoride - Quarterly Reports
174	Journal of Clinical Dentistry
178	Journal of Hard Tissue Biology
193	International Journal of Clinical Dentistry

https://www.scimagojr.com/journalrank.php?area=3500

Tab E
Selected textbooks for ODC&B Programs

Textbooks on ODC&B for the pre-doctoral dental student:

1. Textbook of Preclinical Conservative Dentistry by Garg, Amit & Garg, Nisha
2. Sturdevant's Art and Science of Operative Dentistry 6th Edition by Theodore M. Roberson, DDS (editor), Harold O. Heymann, DDS (Editor), Edward J. Swift, Jr. (Editor)
3. Fundamentals of Operative Dentistry: A Contemporary Approach (3rd Edition) by R Schwartz, J B Summitt & J W Robbins
4. Restorative Dentistry 2nd Edition by A. D. Walmsley, Trevor Walsh, F.T.J. Burke, P. Lumley and R. Hayes-Hall
5. Fundamentals of Tooth Preparations by H T Shillingburg
6. Restorative Dentistry by P H Jacobsen
7. Craig's Restorative Dental Materials, 13th Edition by John M. Powers, Ronald Sakaguchi
8. Phillips' Science of Dental Materials, 12th Edition by Kenneth J Anusavice, DMD, PhD
9. Dental Materials and Their Selection, 4th Edition by William J. O'Brien
10. Introduction to Dental Materials, (3nd Edition) by Richard Van Noort
11. Materials in Dentistry Principles and Applications by Jack L Ferracane MS, PhD, FADM
12. Esthetics with Resin Composite: Basics and Techniques by Burkard Hugo

Textbooks on ODC&B for the post-doctoral resident in Operative Dentistry:

1. A Practical Clinical Guide to Resin Cements by Michelle Sunico-Segarra & Armin Segarra
2. Adhesive Metal-free Restorations by Dietschi & Spreafico
3. Advanced Ceramics for Dentistry by James Shen
4. Advanced Operative Dentistry by David Ricketts & David Bartlett
5. Advances in Calcium Phosphate Biomaterials by Besim Ben-Nissan
6. Advances in Glass-Ionomer Cements by C L Davidson (Editor) & I Mjor (Editor)
7. Biostatistics for the Biological and Health Sciences with Statdisk Plus MyStatLab by
8. Bleaching Techniques in Restorative Dentistry by L Greenwall BDS MGDS MRD MSc
9. Applied Dental Materials by J F McCabe & A W G Wells
10. Bonded Porcelain Restorations in the Anterior Dentition: a Biomimetic Approach by Pascal Magne, Urs Belser
11. Clinical Aspects of Dental Materials: Theory Practice and Cases, Fourth Edition by Marcia Gladwin and Michael Bagby
12. Complete Dental Bleaching by Robert E. Goldstein & David A. Gar
13. Decision Making in Operative Dentistry by Paul A. Brunton
14. Dental Biomaterials by E Combe
15. Dental Biotribology by Zhong-Rong Zhou, Hai-Yang Yu, Jing Zheng
16. Dental Enamel by CIBA Foundation Symposium
17. Dentine Hypersensitivity: Advances in Diagnosis, Management, and Treatment edited by David G. Gillam
18. Designing Clinical Research by Stephen B. Hulley, Steven R. Cummings, Warren S. Browner, Deborah G. Grady, Thomas B. Newman

19. Dry Mouth: A Clinical Guide on Causes, Effects and Treatments by Guy Carpenter
20. Essentials of Writing Biomedical Research Papers by Mimi Zeiger
21. Esthetic Color Training in Dentistry by Rade Paravina, John Powers
22. Esthetic Dentistry and Ceramic Restorations by Bernard Touati DMD, Daniel Nathanson DMD, MSD, Paul Miara
23. Esthetic Dentistry: A Clinical Approach to Techniques and Materials by Kenneth W. Aschheim, Barry G. Dale
24. Esthetics in Dentistry, Volume 1: Principles, Communications, Treatment Methods, (2nd Edition) by Ronald Goldstein, DDS
25. Esthetics in Dentistry, Volume 2: Esthetic Problems of Individual Teeth, Missing Teeth, Malocclusion, Special Populations, (2nd Edition) by Ronald E. Goldstein and Van Haywood
26. Esthetics with Resin Composite: Basics and Techniques by Burkard Hugo
27. Failure in the Restored Dentition: Management and Treatment by M D Wise, A Laurie
28. Functional Occlusion From TMJ to Smile Design by Peter E. Dawson
29. Fundamentals of Color: Shade Matching and Communication in Esthetic Dentistry by Stephen Chu, Alessandro Devigus, and Adam J. Mieleszko
30. Fundamentals of Esthetics by Claude R. Rufenacht
31. Handbook of Biomaterial Properties by Jonathan Black, Garth Hastings
32. Lasers in Restorative Dentistry: A Practical Guide by Giovanni Olivi, Matteo Olivi
33. Materials Science for Dentistry, (9th Edition) By Dr. Brian W. Darvell
34. Minimally Invasive Restorations with Bonding by M Degrange & J Roulet
35. Operative Dentistry: A Practical Guide to Recent Innovations (Clinical Sciences in Dentistry) by Hugh Devlin
36. Pharmacology of Fluorides By Ernst W. Alther
37. Pickard's Manual of Operative Dentistry by E A M Kidd, B G N Smith & H M Pickard
38. Plastics in Dentistry and Estrogenicity: A Guide to Safe Practice by Theodore Eliades & George Eliades
39. Porcelain & Composite Inlays & Onlays: Esthetic Posterior Restorations by David A. Garber, Ronald E. Goldstein
40. Principles and Practice of Esthetic Dentistry, 1st Edition, Nairn H. F. Wilson, Brian Millar
41. Principles and Practice of Laser Dentistry by Robert A. Convissar DDS
42. Principles of Esthetic Integration by Claude R. Rufenacht
43. Restorative Dentistry, 2nd Edition by A. D. Walmsley, Trevor Walsh, F.T.J. Burke, P. Lumley and R. Hayes-Hall
44. Shape and Color: The Key to Successful Ceramic Restorations by Gerald Ubassy
45. Smile Design: A Guide for Clinician, Ceramist, and Patient by Gerard Chiche and Hitoshi Aoshima
46. The Future of Dental Amalgam: A Review of the Literature by Barry Eley
47. The Science and Art of Porcelain Laminate Veneers by Galip Gürel (ed), Stephen J. Chu, Korkud Demirel, Jean-Françüois Roulet, Claude R. Rufenact
48. Tooth Whitening: Indications and Outcomes of Nightguard Vital Bleaching by Van B Haywood

THE AMERICAN BOARD OF OPERATIVE DENTISTRY, INC.

March 10, 2024

From: President of the American Board of Operative Dentistry (ABOD)
To: Commission on Dental Accreditation (CODA), the Chair of the Commission
Subj: OPERATIVE/ RESTORATIVE DENTISTRY PROGRAMS

1) The American Board of Operative Dentistry (ABOD), Inc. was created in 1980 by the Academy of Operative Dentistry to elevate the science and practice of Operative Dentistry by conducting exan1inations to recognize the proficiency of dentists who voluntarily apply to the Board for Certification. Since that time the criteria for Board Eligibility status have evolved to now require Advanced training in Operative Dentistry taught at a dental school.

2) During this same time period, Operative / Restorative programs evolved from three main Dental School based programs to nine. Currently, in addition to these nine programs, there are foreign dentist programs, advanced adult education programs, and esthetics programs. It is increasingly difficult to evaluate the difference between programs as all make claims for advanced level training; this is a problem for students and the Board alike.

3) As you are aware, Operative Dentistry was awarded Area of Special Interest Status with a working definition of: *That branch qf general dentistry concerned with the advanced knowledge, expertise and clinical skills in operative dentistry, restorative dental materials, educational theory, techniques, and teaching skills. It includes scientific research and knowledge in the areas of Cariology and advanced scientific clinical training in restorative materials and biomaterials.*

4) It is for all of the above reasons that the American Board of Operative Dentistry (ABOD) requests the Commission (CODA) to establish guidelines for Advanced Operative Dentistry Programs, evaluate programs and provide program certification when appropriate.

5) It would be inappropriate for the ABOD to presume to set requirements for restorative programs, just as it would be inappropriate for restorative programs to impose requirements for the Board. The Board has, however, considered the question of how to best train dentists to train

other dentists in Operative Dentistry (per the working definition) and proposes the following be considered as components of Advanced (postdoctoral) Operative Dentistry Training programs:

Associated with a CODA-accredited university
Minimum 2 years full time study in length
Taught at a graduate level
Includes an applicable research project and thesis.
Leads to a Master's degree
Dental Biomaterial Science covering in-depth training on all dental materials available (amalgam, composite, porcelain, gold, metals etc.)
Provides an online syllabus
Residents are evaluated quarterly (possibly with portfolios)
Course of instruction should include:

- Advanced restorative techniques
- Comprehensive treatment Planning
- Esthetics
- Cariology
- Functional Occlusion
- Digital dentistry and emerging technology
- Research Methodology
- Teaching Methods (include: criteria evaluations, pre/clinical teaching experience etc.)
- Treatment Case Presentations
- Restoration of dental implants
- Dental photography
- Patient management, infection control, clinic safety

Thank you for your consideration.

Jeff9'11 MS
President, American Board of Operative Dentistry
For Members of the Board

Dr. Gordon K Jones
[redacted]

June 13, 2024

Dr. Sherin Tooks
Director
Commission on Dental Accreditation
211 East Chicago Avenue
Chicago, Illinois 60611

Dear Dr. Tooks,

The ADA Council for Dental Education and Licensure recognizes the area of Operative Dentistry, Cariology, and Biomaterials (ODC&B) as a Special Interest Area of General Dentistry. In 2022, a request for development by the Commission on Dental Education (CODA) of a process to accredit the well-established residency level educational programs in this area was submitted to CODA with support from the Academy of Operative Dentistry (AOD). After review at the 2023 Winter meeting, the Commission provided invaluable feedback on their concerns about this request.

To develop a unified response to the Commission's concerns, and with the ultimate goal of establishing a CODA accreditation process for their programs, the Program Directors of the nine US Advanced Education programs which focus on ODC&B, formed the Advanced Operative Educators Alliance (AOEA). With the support of their Deans, they have joined the AOD in submitting this request.

The advanced education programs represented by the AOEA are affiliated with and integral to CODA-accredited university dental schools. All are well established, full-time academic programs ranging from two to five years in duration and confer certificates and/or MS, MSD, DSc, and PhD degrees, and are listed below with their Program Directors:

- Boston University (Dr. John Ictech-Cassis)
- University of California Los Angeles (Dr. Thomas Lee)
- University of Florida (Dr. Patricia Pereira)
- Indiana University (Dr. Oriana Capin)
- University of Iowa (Dr. Sandra Guzman-Armstrong)
- University of Michigan (Dr. Gisele De Faria Neiva)
- University of North Carolina (Dr. Adalberto "Bert "Vasconcellos)
- University of Southern California (Dr. Sillas Duarte, Jr.)
- Tufts University (Dr. Gustavo Mahn Arteaga)

These programs seek the establishment of an accreditation review process to ensure their quality and ongoing improvement for the benefit and protection of the public, their residents, and the profession.

It should be emphasized that this application is for accreditation NOT as a dental specialty, but as an area of General Dentistry in addition to AEGD and GPR programs. A description of the scope of education involved in Operative Dentistry, Cariology, and Blomaterials (ODC&B) programs, with supporting exhibits, is attached, as well as a letter of support from the Deans of the accredited dental schools that award degrees for these programs.

After several meetings of all programs, and with their endorsement, I have been authorized by the Academy of Operative Dentistry to formally submit this request. Please let me know if you require any additional information or if there is anything else I can do to facilitate this request.

Very Respectfully,

Gordon K. Jones, D.D.S., **M.S.,** A.8.0.D.
Academy of Operative Dentistry CODA POC

Academy of Operative Dentistry/American Board of Operative Dentistry, Inc.
CODA Request Working Group

Dr. Gordon K. Jones, DDS, MS, ABOD
[redacted]

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Graduate Restorative Dentistry Program
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Dr. Jan Mitchell, DDS, MEd, ABOD
[redacted]

KRISTI ERICKSON, DMD, MS

To Dr. Tooks and the Commission on Dental Accreditation:

I am Captain Kristi Erickson, US Navy, the Operative Specialty Leader for the Navy Dental Corps to the Navy Surgeon General. I am writing in support of the Advanced Operative Educators Alliance (AOEA) application for CODA accreditation of the special interest area of Operative Dentistry, Cariology and Biomaterials (ODC&B). Within the Navy the special interest area is simply called Operative Dentistry. The Navy considers the special interest area of Operative Dentistry to be a specialty on par with other American Dental Association recognized specialties and providers that complete a 2 year Advanced Education in General Dentistry Program.

Amongst Navy dentists we are the providers called on to provide continuing education in dental materials and restorative techniques and assist clinics in selecting restorative materials. We are a smaller specialty in the Corps, 26 dentists, but are highly respected. We are educators. Whether PGY-1 program directors or for first year dentists who do not chose a formal PGY-1 program, we ensure they are trained to Navy standards for annual exams, caries risk assessment, dental materials, and advanced restorative procedures such as cuspal coverage resins and amalgams, and CADCAM restorations and for formal programs meet CODA standards.

Within the Navy Dental Corps, Operative trained dentists also serve in addition to my role as Operative Specialty leader, as advisors to the Surgeon general in the areas of Preventive Dentistry, Post Graduate Year -1 Programs, and Clinical Digital Dentistry. Our Operative trained dentists are recruited within the Navy to run the large restorative departments and to fill the Navy's research billets. All Navy Operative dentists have completed a master's degree program at a school in the AOEA and 50% of us are Board Certified by the American Board of Operative Dentistry. The Navy sends anywhere from 1-3 residents a year to AOEA training programs, dependent on the community manning and availability for the Navy to send trainees to out service schools. The Navy tries to vary the schools we go to so as to enjoy the varied focus of each program, but knowing we will get a high quality product from whichever school we send the trainee to.

The accreditation of Operative Dentistry Programs as a Special interest area of general dentistry would bring us on par with our fellow specialists including our Comprehensive dentists who have complete a 2 year AEGD and acknowledge the training we receive in educational techniques, research, dental materials, cariology, and restorative techniques. The AOEA programs develop educators for our CODA

KRISTI ERICKSON, DMD, MS

accredited dental schools and schools overseas we should ensure that we have a CODA accredited programs for them to specialize in. Of the 9 residents present at the University of North Carolina when I graduated from the Operative Program in 2013, 6 graduates are faculty at various CODA accredited dental schools, 2 (myself and another) are in the Navy and one practices in Iceland and is part time faculty at their dental school.

As a CODA site visitor for PGY-1 programs I can state with confidence the benefit of accreditation,such as the PGY-1 programs hold as special interest area of general dentistry, will help the AOEA programs to train to specific standards but still allow individuality within the programs. Accreditation is part of the ODC&B programs developing strong educators for our undergraduate and post graduate dental programs who are trained to teach basic and advanced areas that are the fundamental building blocks of dentistry. I cannot wait to be requested to be a site visitor at an ODC&B program.

Please let me know if you have any questions or concerns. I can be reached at work at kristi.e.erickson.mil@health.mil or by cell at [redacted]

Kristi E. Erickson
CAPT, DC, USN

[redacted]

Dr. Sherin Tooks
Director, Commission on Dental Accreditation
211 East Chicago Avenue
Chicago, Illinois 60611

Dear Dr. Tooks,

As the Deans of nine dental schools with advanced education programs in the special interest area of Operative Dentistry, Cariology, and Biomaterials (ODC&B), we wish to express our strong and unanimous support for their application for accreditation by the Commission on Dental Accreditation.

These programs, established for decades at our Universities' CODA-accredited Dental Schools, require a minimum of two years of rigorous and well-established full-time curriculum. Most extend for three years, conferring a professional certificate and either a Master of Science degree or a PhD degree. Under the guidance of highly skilled clinician-scientists, these programs integrate intensive academic coursework, clinical practice, and research.

This endorsement concerns the Academy of Operative Dentistry's second submission for program accreditation as a Special Interest Area of General Dentistry. Following the constructive feedback received from CODA in 2022, the program directors, representatives of the Academy of Operative Dentistry, and the American Board of Operative Dentistry have meticulously addressed the specific concerns.

Our support for Operative Dentistry, Cariology, and Biomaterials (ODC&B) programs is based on our experience with the advanced clinical skills and expertise that graduates provide to the public and to dental education. With a focus on caries—the most prevalent and consequential oral disease—these programs uniquely equip their graduates with vital knowledge and practical applications of Cariology, which is essential to manage the widespread prevalence of this complex disease. Additionally, ODC&B graduates demonstrate advanced clinical skills in esthetic and dental biomaterials and their interaction with the host, including expertise in cutting-edge digital technology.

These programs provide an outsized public benefit. They train educators who bring a wealth of advanced knowledge in caries diagnosis and management, foundational and advanced operative dentistry, and biomaterials, which are essential in preparing the next generation of dentists. Moreover, ODC&B graduates enrich our dental schools with their expertise in curriculum development and material selection. The research training that residents receive in these programs enables them to generate new knowledge in the fields of Cariology and Biomaterials and fosters the application of this new knowledge into state-of the art patient care in Operative Dentistry settings. Their exposure to scholarship also enables them to rigorously appraise and employ evidence-based literature clinically, influencing patient care more broadly than their numbers alone might suggest.

Ultimately, accreditation will facilitate alignment and greater standardization across institutions. This will not only benefit the residents but will also have cascading positive effects on the oral health of the public and dental education.

It is time for advanced education programs in Operative Dentistry, Cariology, and Biomaterials to be recognized and held to the same esteemed CODA standards as other areas of advanced dental training. Their accreditation is a necessary step—one that is long overdue.

We would like to extend our gratitude for your thoughtful consideration of this matter.

Boston University
Cataldo W. Leone, DMD, DMedSc

The University of California at Los Angeles
Paul H. Krebsbach, DDS, PhD

The University of Florida
A. Isabel Garcia, DDS, MPH

Indiana University
Carol Anne Murdoch-Kinch, DDS, PhD

The University of Iowa
Clark Stanford, DDS, PhD, MHA

University of Michigan
Jacques E. Nör, DDS, MS, PhD

University of North Carolina
Janet M Guthmiller, DDS, PhD

University of Southern California
Avishai Sadan, DMD, MBA

Tufts University
Nadeem Karimbux, DMD, MMSc, BSc

E. POLICIES AND PROCEDURES FOR ACCREDITATION OF PROGRAMS IN A NEW DENTAL EDUCATION AREA OR DISCIPLINE

In the initiation of an accreditation review process for programs in a dental education area or discipline, the Commission on Dental Accreditation seeks only to ensure the quality of the education programs in the area or discipline, for the benefit and protection of both the public and students/residents. The Commission's accreditation process is intended to promote and monitor the continuous quality and improvement of dental education programs and does not confer dental specialty status nor endorse dental disciplines.

Items 1 through 4 listed below provide a framework for the Commission in determining whether a process of accreditation review should be initiated for the new dental education area or discipline. Each item must be addressed in a formal, written request to establish an accreditation process for programs in an area or discipline of dentistry.

1. Does the dental education area or discipline align with the accrediting agency's mission and scope?

Elements to be addressed:

- Define the nationally accepted scope of the dental education area or discipline.
- List the nationally accepted educational goals and objectives of the dental education area or discipline.
- Describe how the area or discipline aligns with the Commission on Dental Accreditation's mission and scope.
- Describe the quality of the dental education area or discipline, and need for accreditation review of the programs, as an important aspect to the health care of the general public. Include evidence that the area of knowledge is important and significant to patient care and dentistry.
- Provide evidence that the programs are academic programs sponsored by an institution accredited by an agency legally authorized to operate and recognized by the United States Department of Education or, as applicable, by an accreditation organization recognized by the Centers for Medicare and Medicaid Services (CMS), rather than a series of continuing education experiences.
- Describe the sponsoring, professional organization/association(s), if any, and (if applicable) the credentialing body, including the following information:
  - number of members;
  - names and contact information of association officers;
  - list of sponsored continuing education programs for members within the last five (5) years; and
  - for credentialing body: exam criteria; number of candidates; and pass rate for the past five (5) years.

2. Is there a sufficient body of knowledge to educate individuals in a distinct dental education area or discipline, not merely one or more techniques?

   Elements to be addressed:
   - Describe why this area of knowledge is a distinct dental education area or discipline, rather than a series of just one or more techniques.
   - Describe how scientific dental knowledge in the education area or discipline is substantive to educating individuals in the education area or discipline.
   - Document the complexity of the body of knowledge of the education area by identifying specific techniques and procedures.
   - List the nationally accepted competency statements and performance measures for the dental education area.
   - Identify the distinct components of biomedical, behavioral and clinical science in the dental education area or discipline.
   - Provide documentation that there is a body of established, substantive, scientific dental knowledge that underlies the dental education area or discipline.
   - Document that the dental education program is the equivalent of at least one twelve-month full-time academic year in length.
   - Describe the current and emerging trends in the dental education area or discipline; and
   - Document that dental health care professionals currently provide health care services in the identified dental education area or discipline.

3. Do a sufficient number of established programs exist and contain structured curricula, qualified faculty and enrolled individuals so that accreditation can be a viable method of quality assurance?

   Elements to be addressed:
   - Document that the educational program is comprised of formal curriculum at the postsecondary or postgraduate level of education leading to a bona fide educational credential (certificate or degree) that addresses the scope, depth and complexity of the higher education experience, rather than a series of continued education courses.
   - Describe the historical development and evolution of educational programs in the dental education area or discipline. Do not submit information on the history of the sponsoring organization.
   - Provide a list of all the currently operational programs in the dental education area or discipline, including the following information:

     a. sponsoring institution;
     b. name and qualifications of the program director;
     c. number of full-time and part-time faculty (define part-time for each program) and list the academic credentials required for these faculty;

d. curriculum (academic calendars, class schedules, student/resident competencies, syllabi that address scope, depth and complexity of the higher education experience, including course outlines for each course, formal approval or acknowledgment by the parent institution that the courses or curricula in the education area meet the institution's academic requirements for advanced education);
e. textbooks and journals, or other learning resources used within the educational program;
f. evidence that the program is a bona fide higher education experience that addresses the scope, depth and complexity of higher education, rather than preceptorships or a series of continuing education courses;
g. outcomes assessment methods;
h. minimum length of the program for full-time students/residents;
i. certificate and/or degree or other credential awarded upon completion;
j. number of enrolled individuals per year for at least the past five (5) years; and number of graduates per year for at least the past five (5) years. If the established education programs have been in existence less than five (5) years, provide information since its founding;
k. confirmation that the program in the education area would seek voluntary accreditation review, if available;
l. programs' recruitment materials (e.g. bulletin, catalogue); and
m. evidence that the programs in the discipline are legally authorized to operate by the relevant state or government agencies.

4. Is there evidence of need and support from the public and professional communities to sustain educational programs in the discipline?

   Elements to be addressed:
   - Provide evidence of the ability to perform a robust, meaningful peer-reviewed accreditation process including a sufficient number of peers to conduct reviews at all levels of the Commission, as needed.
   - List states where graduates of the dental education area or discipline are recognized for licensure and/or practice.
   - Provide evidence of the potential for graduates to obtain employment, including the following information:
     - Employment placement rates (when available);
     - Documentation of employment/practice opportunities/settings; and
     - Evidence of career opportunities, student interest, and an appropriate patient base.

Adopted: 8/19; Reaffirmed: 8/24

(Former Policies and Procedures for Accreditation of Programs in Areas of Advanced Dental Education and Principles and Criteria Eligibility of Allied Dental Programs for Accreditation by the Commission on Dental Accreditation)