

**Indiana University School of Dentistry
Advanced and Specialty Programs Report 20-21**

Advanced and Specialty Programs

The Indiana University School of Dentistry offers a Master of Science in Dentistry degree (MSD) in Operative Dentistry, Prosthodontics, Endodontics, Periodontics, Pediatric Dentistry, Preventive Dentistry and Orthodontics. A 4-year residency program is also available in Oral and Maxillofacial Surgery and there is a one-year certificate in Maxillofacial Prosthetics. The MSD requires that a student already has a DDS or DMD (or equivalent for non-U.S. trained students).

Students may also enroll in the university's graduate school for a MS in Dental Materials, and there is a PhD in dental sciences with tracks in Dental Materials, Dental Biomaterials, Preventive Dentistry and Oral Biology. These programs do not necessarily require a previous dental degree. Of the programs available at IUSD, the Commission on Dental Accreditation (CODA) accredits Pediatric Dentistry, Prosthodontics, Endodontics, Periodontics, Oral and Maxillofacial Surgery and Orthodontics; these programs participated in the most recent CODA site visit in September 2021. The non-CODA accredited post-graduate programs participated in a program review process with the IUPUI campus in 2012-13 and 2015-16.

In the first year of their program, all Advanced and Specialty students in each graduate program participate in a core of common Graduate Specialty courses which include two Oral Pathology courses, Biostatistics, Advanced Radiology, Oral Biology, Head and Neck Anatomy and Research Methodology. In each program, students must demonstrate mastery of the basic and dental sciences through their performance on written and oral examinations. Students must maintain a minimum grade point average of 3.0 and demonstrate evidence of continuing professional growth (as defined by the program) to remain in good standing.

The IUSD Graduate Program Directors meet monthly to identify common issues and program needs. For example, the recently implemented core course, Research Methodology, was created to standardize the teaching and evaluation of research methods across the various post-graduate and specialty programs. Based on review of residents' progress in moving through the research requirements for the degree, the Directors adopted new expectations for student research protocol submissions. In order to emphasize the importance of a timely approach to the research process, students must meet established dates or suffer significant grade deductions that can impact their graduation. In addition, in all programs there is a requirement that the resident present the research at IUSD Research Day or at a discipline-specific national meeting.

Beyond core courses, the content and clinical activities of each advanced program are very discipline specific and as such, they are briefly outlined below with **examples** of the program student learning objectives, mapped to the Principles or Graduate and Professional Learning (PGPL), along with the assessment mechanisms and findings, program actions and improvements.

A selected group of programs is presented in this report.

PLEASE NOTE: The items included for the advanced programs are **representative rather than exhaustive**.

Name of Advanced or Specialty Program: ENDODONTICS

The dental specialty of Endodontics requires an additional 24 months of clinical and didactic training. The IUSD Graduate Endodontics Program was established in 1959, and since that time has graduated 178 students, approximately 25% of whom are Board Certified. Admission to the program is competitive, and successful applicants must have maintained a minimum of 3.0/4.0 grade point in their dental education program and have graduated in the upper third of their class. For 2021, 122 students applied to the program, three students were selected.

As with most advanced patient care programs, the stated student outcomes incorporate aspects of knowledge in the specialty with the clinical care of patients. By definition, the standard of care for patients includes the ethical practice of one's discipline.

Selected student learning objectives for Endodontics

Graduates will be able to:

1. demonstrate an in-depth knowledge in the basic sciences and endodontic-related didactic courses.
2. increase the knowledge base of endodontics through research, publications and presentations.
3. critically evaluate endodontics with the appropriate literature.

Alignment with the Principles of Graduate and Professional Learning

The student objectives listed above align with the PGPLs and examples of how each principle might be conceptualized within the program are provided here.

PGPL #1 Demonstrate the knowledge and skills needed to meet disciplinary standards of performance.

Students demonstrate the mastery of the knowledge and skills in endodontics during written and oral assessments within the program, demonstrate the integration and application of the knowledge and skills in daily patient care, and by successfully challenging the written, oral and patient-based examinations to become Board certified.

PGPL #2 Communicate effectively with peers, clientele and the general public.

Complex treatment plans require the ability to communicate with patients to determine their wants and needs, as well as the ability to share the expert's knowledge in a manner that is clear to the patient so that the patient is able to make an informed decision about their care. Treatment planning evaluations, faculty observation during patient care, oral defense of content knowledge and communication with peers via posters or presentations all demonstrate successful attainment of this PGL.

PGPL#3 Think critically and creatively to improve practice in the field.

In addition to the care of patients, each endodontic resident must conduct original research that must be defended resulting in a master's thesis.

PGPL#4. Meet all ethical standards established for the discipline.

The daily treatment of patients, including the safeguarding of protected health information and obtaining informed consent are evaluated with every patient. In addition, students engaged in research participate in the IRB process as outlined by the university.

Student assessment methods/measures of student learning related to the first student learning outcome objective is provided here as an **EXAMPLE** of the assessment process across the 2 year program. Each objective has multiple measures associated with the measure, similar to this example.

Objective	Assessment Mechanism	Results Achieved
Graduates will be able to demonstrate in-depth in the basic sciences and endodontic-related courses.	Written and oral assessments in the basic sciences and endodontic-related didactic courses.	All residents have received a letter grade of B or greater and Pass in P/NP in didactic and clinical courses.
	Clinical competency in performances including quality of root-canal procedures.	All residents receive a letter grade of B or better on clinical cases.
	Oral rationale of differential diagnosis (developed and presented for every patient)	Formative discussion with supervising specialist.
	Oral Case Defense	All residents successfully completed oral case defenses.
	American Board of Endodontics Exam. Each resident is required to prepare a case portfolio of 5 cases as a graduation requirement. These are written up according to the ABE guidelines.	In the past seven years, twenty-seven graduates have passed Part I of the Board; seven have passed Part II and seven graduates becoming certified as Diplomates within that time (passed Part III).

The program director meets with each student every 6 weeks for case reviews and ABE preparation and case selection, which allows for additional opportunities to assess and discuss grades, self-evaluation of cases, professional progress, status of their research projects and ethical standards of care. In addition to the case review, each student's progress is evaluated annually by the program director and assistant program director to make sure they are progressing appropriately in both their clinical and didactic areas in order to graduate on time.

Name of Advanced or Specialty Program: PERIODONTICS

The dental specialty of Periodontics requires an additional 36 months of clinical and didactic training. Admission to the program is competitive, and successful applicants must have maintained a minimum of 3.0/4.0 grade point in their dental education program. The maximum number of students enrolled in all three years of the program cannot exceed 15.

As with most advanced patient care programs, the stated student outcomes incorporate many of the aspects of knowledge in the specialty with the clinical care of patients. By definition, the standard of care for patients includes the ethical practice of one's discipline.

Selected student learning objectives for Periodontics

Graduates will be able to:

1. demonstrate they have acquired the scientific knowledge, diagnostic and therapeutic skills involved in clinical periodontics and implant dentistry.
2. critically evaluate the dental literature, research and new therapeutic techniques.
3. diagnose and effectively treat periodontal disease and edentulism with dental implants.
4. identify and integrate systemic and/or other oral conditions in establishing and maintaining periodontal health.
5. advance the understanding of the theory and methods of clinical and basic science research.
6. communicate knowledge of periodontics, oral medicine and related subjects to patients and in an academic environment.
7. demonstrate an understanding of the theory and methods of performing research.

Alignment with the Principles of Graduate and Professional Learning

The student objectives listed above align with the PGPLs and examples of how each principle might be conceptualized within the program are provided here.

PGPL #1 *Demonstrate the knowledge and skills needed to meet disciplinary standards of performance.* Students demonstrate the mastery of the knowledge and skills in periodontics during written and oral assessments within the program, demonstrate the integration and application of the knowledge and skills in daily patient care, and by successfully challenging the written, oral and patient-based examinations to become Board certified.

PGPL #2 *Communicate effectively with peers, clientele and the general public.*

Complex treatment plans require the ability to communicate with patients to determine their wants and needs, as well as the ability to share the expert's knowledge in a manner that is clear to the patient so that the patient is able to make an informed decision about their care. Treatment planning evaluations, faculty observation during patient care, oral defense of content knowledge and communication with peers via posters or presentations all demonstrate successful attainment of this PGL.

PGPL#3 *Think critically and creatively to improve practice in the field.*

In addition to the care of patients, each periodontics resident must conduct original research that must be presented as either a thesis or as an article suitable for publication in a discipline journal.

PGPL#4. *Meet all ethical standards established for the discipline.*

The daily treatment of patients, including the safeguarding of protected health information and obtaining informed consent are evaluated with every patient. In addition, students engaged in research participate in the IRB process as outlined by the university.

Student assessment methods/measures of student learning related to the first student learning outcome objective is provided here as an **EXAMPLE** of the assessment process across the 3-year program. Each objective has multiple measures associated with the measure, similar to this example.

Desired student outcome	Assessment mechanisms/Measures	Findings
Graduates will demonstrate attainment of scientific knowledge and the acquisition of diagnostic and therapeutic skills involved in clinical periodontics and implant dentistry.	Proficiency in basic science and periodontal-related didactic courses as measured by written and oral examinations	All residents from class of 2018-2021 have received a letter grade of B or greater and Pass in P/NP in didactic and clinical courses.
	AAP In-Service Exam (ISE)	Students failing to test at least at the 50th percentile ISE were remediated by retesting on every question answered incorrectly. (Minimal passing score for remediation testing was 80%, all remediated students scored above 90%.) AAP in-service exam review sessions were added for volunteered students since 2017. All residents received more than 50 percentile of score. In 2021, a total of 4 out of 12 residents exceeded ninety-percentile of scores.
	American Board of Periodontology Qualifying and Oral Exams	With only two exceptions since 2002, all graduates have challenged the ABP Qualifying Examination immediately after graduating with a first-time pass rate of 97.5%. Since the last accreditation visit in 2013, all 39 graduates successfully passed the ABP Qualifying Exam (100% pass rate). With regards to the ABP Oral Examination, since 2002, 73 out of 79 graduates (92.4%) have become ABP Diplomates.
	Future employments and survey for recent graduates	All graduates have found employment after graduation. The majority of students have gone into full-time private practice although approximately 30% have gone into full- or part-time academics and seven recent graduates have gone into full-time teaching since 2013 (25%). Alumni surveys sent to graduates 1 and 5 years after graduation have consistently shown that the program graduates have been prepared didactically and clinically to be successful in private practice and/or an academic career.
	Research activities and Scholarly achievements	Multiple students have presented basic science and clinical science in multiple research competitions including IUSD Annual Research Day (local), the Midwest Society of Periodontology Graduate Research Forum (regional); national presentations have included AAP Annual Meeting Poster Sessions, Osteology National Symposium, Academy of Osseointegration Annual Meeting, International Symposium on Periodontics and Restorative Dentistry Poster Session, Volpe Prize for Clinical Research, and IADR/AADR/CADR General Session. Since 2013, a total of 62 peer-reviewed scientific papers have been published from the Graduate Periodontics program, all of which have been authored/co-authored by graduate students and periodontal faculty. Additionally, 16 oral and 77 poster presentations by graduate students have been presented at local, regional, national, and international meetings during this same time period.
	MSD Qualifying Oral & Written Examinations	All of the recent graduate students (up to 2021) have successfully passed the MSD Qualifying Oral & Written Examinations.

Name of Advanced or Specialty Program: PEDIATRIC DENTISTRY

The dental specialty of Pediatric Dentistry requires an additional 24 months of clinical and didactic training. Admission to the program is competitive, and successful applicants must have maintained a minimum of 3.0/4.0 grade point in their dental education program and have graduated in the upper third of their class. In 2020, 111 applicants competed for 7 openings.

Pediatric Dentistry evaluates student progress against program benchmarks. It is acknowledged that this does not fit perfectly with the requested model of program assessment at IUPUI, but is nonetheless the way the outcomes measures are constructed for this program based in Riley Children's Hospital.

Selected example outcome objectives for Pediatric Dentistry include:

Outcome Objective # 1.

All Pediatric Dentistry Graduate Students will follow the Indiana University School of Dentistry Graduate Student Manual Policy on student progress, including grades and requirements for graduation.

Related Graduate PUL: *Demonstrate the knowledge and skills needed to meet disciplinary standards of performance.*

Assessment Mechanism: Grade point average in graduate courses, as determined by written and clinical assessments.

Findings: All residents have maintained the required 3.0/4.0.

Outcome objective #2.

All graduate students will pass their oral and written qualifying exams prior to entering their second year of residency.

Related Graduate PUL: *Demonstrate the knowledge and skills needed to meet disciplinary standards of performance.*

Assessment Mechanism: Oral and Written Qualifying exams.

Findings: For the last three years, all students have passed their written and oral qualifying examinations. Pass rates on the written American Board of Pediatric Dentistry (ABPD) for the three years: 21/21 first time pass.

Required Evaluations of Residents:

Evaluation of all residents in IU hospital-based programs is required annually and is done using a common comprehensive evaluation instrument that includes didactic, clinical and interpersonal skills. The IUSD Pediatric Dentistry Program conducts these evaluations twice a year, rather than once a year. Each student meets independently with the Program Director to address identified areas for improvement. Follow up evaluations on the problem areas may be conducted as soon as 3 months if the Program Director so determines.

Name of Advanced or Specialty Program: **Orthodontics**

Orthodontics

Orthodontics is a highly competitive program that admits 7 students each year from the approximately 200 applicants received. During the 24 month residency program, all orthodontic residents must acquire a Masters degree (Masters of Science in Dentistry).

The Orthodontic Postgraduate Program at Indiana University School of Dentistry trains ethical and competent orthodontists who are able to:

1. Provide the best possible orthodontic treatment for patients.
2. Utilize an evidence-based approach to make sound treatment decisions and to assess the quality of orthodontic treatment rendered. **
3. Contribute significantly to the health of the community through meeting their social and professional responsibilities.
4. Contribute to the advancement of orthodontics through basic, clinical, & educational research and the dissemination of those findings.

** “quality” patient care is further defined and outlined by the American Board of Orthodontics (ABO) and the Commission on Dental Accreditation (CODA) with specific proficiency statements. For example, each graduate must demonstrate **proficiency** in more than 16 areas and have **familiarity** with an additional 14 areas, including the following:

Development of treatment plans and diagnoses based on information about the normal and abnormal growth and development.

Apply knowledge about the diagnosis, prevention, and treatment of pathology of oral tissue.

Provide all phases of orthodontic treatment including initiation, completion, and retention.

(Be familiar with the) psychological aspects of orthodontic and dentofacial orthopedic treatment.

In the following tables, each broad learning objective or outcome is listed, along with related Principles of Graduate and Professional Learning that relate most closely to the outcome. Assessment measures and the intent of the measure is also included, along with resultant changes or revisions recently identified or implemented to improve student learning.

Examples of student objectives, assessment mechanisms and use of information for program improvement are listed below in the tables that follow.

The Orthodontic Postgraduate Program at Indiana University School of Dentistry trains ethical and competent orthodontists who:					
Obj. #1 Provide the best possible orthodontic treatment for patients.*					
Obj. #2 Utilize an evidence-based approach to make sound treatment decisions and to assess the quality of orthodontic treatment rendered.					
Related IUPUI PG&PL**	Assessment Mechanisms	Intent of assessment	When assessed	Program Action Steps	Results Achieved
<p>#1. Demonstrate the knowledge and skills needed to meet <u>disciplinary standards of performance</u>.</p> <p>#2. Communicate effectively with peers, clientele and the general public.</p> <p>#3. Think critically and creatively to improve practice in the field.</p> <p>#4. Meet all ethical standards established for the discipline.</p>	<p>1. a. Course grades in Core Master's Classes (6 courses) via written and laboratory examination (minimum of 70% to pass).</p> <p>b. Orthodontic courses assessed via laboratory and written examination (minimum of 70% to pass).</p>	<p>Measure knowledge in disciplinary and cross disciplinary content.</p>	<p>Ongoing in first year of specialty program.</p>		<p>All ortho residents successfully completed Core classes.</p>
	<p>2. Weekly Grand Rounds Case Conferences (graded course; minimum of 70% to pass).</p>	<p>Assessment of didactic knowledge and the application of that clinical knowledge to patient care.</p>	<p>Weekly feedback; course grade by semester.</p>		<p>2015-22 all students passed</p>
	<p>3. Qualifying Exam (end of year 1); both written and oral. Each section must be independently passed at a minimum of 70% and the overall examination by at least 40%.</p>	<p>Assess discipline knowledge, problem solving as it relates to patient cases, and ability to communicate treatment related information to other professionals.</p>	<p>May/June of first year</p>	<p>Ongoing evaluation of exam content & student outcomes in summer.</p>	<p>Since 2012, only 3 students have been identified with deficits. Two students successfully remediated the assessments and progressed through the program, and one was offered an opportunity to repeat the year. All three students satisfied all elements of the curriculum and completed the program.</p>
<p>**Due to the integrated and authentic nature of most assessments in clinical patient care, which require both content knowledge and skills, the ability to communicate with patients and faculty in order to explain and gain compliance, and the necessity to provide patient care that is compliant with the ethical and legal standards of care, all</p>	<p>4. Evaluate 20 completed cases using ABO format (System allows quantification of patient outcomes related to measures of quality in final orthodontic treatment results)</p> <p>5. Students participate in a Mock Board Examination in which they present 2 completed clinical</p>	<p>Assess quality of care provided to patients over length of treatment; demonstrate student's ability to assess the outcomes of care. Utilization of ABO format provides a consistency in the assessment process</p>	<p>Fall of the second year</p>	<p>The department has made a great effort to create a completely digital educational/clinical experience. With this change it has made it difficult to complete one aspect of our case review process (Caste & Radiographic assessment) using the developed ABO tools. To ensure that the students possess a sound ability to utilize these tools</p>	<p>This change was made in the fall of 2019; however, it appears that students are still gaining the knowledge and experience necessary to properly use utilize the ABO CRE form and quantitatively assess the clinical outcomes of finished cases.</p>

of the Principles of Learning in Professional Education are represented in most of the Orthodontics Program objectives.	cases to selected examiners. They also participate in a number of clinical scenario-based assessments to further assess their ability to convey and utilize their developing knowledge.			properly, a secondary assessment activity using the ABO CRE form was established.	
	6. Complete the Phase II American Board of Orthodontics Exam	A written capstone measure of the student's successful mastery of the principles and practice of Orthodontics.	Spring of the student's second year	The high pass rate on this national competency exam indicates that the students are mastering the knowledge and skills expected for the field	Since 2013, all but two students have passed this written examination (54 of 56, a 96.4% success rate).

Obj. #3 Contribute significantly to the health of the community through meeting their social and professional responsibilities.

Related IUPUI PG&PLs	Assessment Mechanisms	Intent of assessment	When assessed	Program Improvement & Action Steps	Results Achieved
<p>#1. Demonstrate the knowledge and skills needed to meet <u>disciplinary standards of performance</u>.</p> <p>#2. Communicate effectively with peers, clientele and the general public.</p> <p>#4. Meet all ethical standards established for the discipline.</p>	<p>In addition to the applicable assessments listed above, students have clinical management evaluations that include the assessment of their management of patients who have:</p> <p>a. dentoskeletal anomalies; b. biopsychosocial complications to orthodontic care</p> <p>Post-graduate surveys to gauge participation in organized dentistry, community activities, provision of pro bono or reduced cost treatment to patients of need, and treatment of children with special needs or craniofacial anomalies</p>	<p>To evaluate the thoroughness and quality of care provided to all patients.</p> <p>To determine the degree to which students are meeting social and professional responsibility as practitioners.</p>	<p>At least twice per year</p> <p>1-5 years post graduate</p>	<p>Restructured format of Craniofacial clinic in Grad Ortho. Residents rotate to clinic area under the supervision of a CFA specialist.</p> <p>Recent graduate response rates remains relatively low for the graduate survey. In an attempt to improve the response rate, the department has begun to disseminate both a physical survey, as well as an electronic version to enhance access. The graduates also receive an email from the department informing them of the purpose of the survey and to encourage participation.</p>	<p>Continued IUSD emphasis on care for those with special needs and craniofacial anomalies.</p> <p>This change was implemented in the summer of 2019, the response rate has slightly improved and the Program Director will continue to review the department's process and consider modifications that will result in more robust degree of feedback from our program graduates. Within the obtained feedback, two general areas of improvement have been identified: 1) enhanced exposure with clear aligner treatment and 2) additional exposure to practice management information.#</p>

To address the areas shared by our graduates, the department has organized additional lecture opportunities on both clear aligner therapy, as well as practice management. The department has also sought to diversify the types of individuals who speak to the graduate students in the area of practice management (CPA's, lawyers, business consultants, etc.). Lastly, the department has partnered with external entities who provide additional information in the two areas identified by the graduate students. Through these changes, the department hopes to build a better foundational experience for the students and one that will support them as they continue through their

Name of Advanced or Specialty Program: PROSTHODONTICS and INTEGRATED MAXILLOFACIAL PROSTHETICS

The dental specialty of Prosthodontics requires an additional 36 months of clinical and didactic training. Admission to the program is competitive, and successful applicants must have maintained a minimum of 3.0/4.0 grade point in their dental education program and have graduated in the upper third of their class; 6 students are accepted each year from more than 150 applicants.

As with most advanced patient care programs, the stated student outcomes incorporate many of the aspects of knowledge in the specialty with the clinical care of patients. By definition, the standard of care for patients includes the ethical practice of one's discipline.

Selected student learning objectives for Prosthodontics

Graduates will be able to:

1. demonstrate they have scientific knowledge and acquired diagnostic and therapeutic skills involved in clinical prosthodontics, maxillofacial prosthetics and implant dentistry.
2. apply this knowledge and these skills effectively to the diagnosis and treatment involved in clinical prosthodontics, maxillofacial prosthetics and implant dentistry.
3. communicate knowledge of prosthodontics, dental implants and related subjects to their patients and in an academic environment.
4. critically evaluate the dental literature, research and new treatment techniques.
5. demonstrate an understanding of the theory and methods of performing research.

Alignment with the Principles of Graduate and Professional Learning

The student objectives listed above align with the PGPLs and examples of how each principle might be conceptualized within the program are provided here.

PGPL #1 Demonstrate the knowledge and skills needed to meet disciplinary standards of performance.

Students demonstrate the mastery of the knowledge and skills in prosthodontics during written and oral assessments within the program, demonstrate the integration and application of the knowledge and skills in daily patient care, and by successfully challenging the written, oral and patient-based examinations to become Board certified.

PGPL #2 Communicate effectively with peers, clientele and the general public.

Complex treatment plans require the ability to communicate with patients to determine their wants and needs, as well as the ability to share the expert's knowledge in a manner that is clear to the patient so that the patient is able to make an informed decision about their care. Treatment planning evaluations, faculty observation during patient care, oral defense of content knowledge and communication with peers via posters or presentations all demonstrate successful attainment of this PGL.

PGPL#3 Think critically and creatively to improve practice in the field.

Patients who seek the care of a prosthodontist generally have complex needs that go beyond the scope of the general dentist. The ability to devise novel applications of prosthetics is one example of students demonstrating their ability to improve practice in the field via critical evaluation and creative thinking.

PGPL#4. Meet all ethical standards established for the discipline.

The daily treatment of patients, including the safeguarding of protected health information and obtaining informed consent are evaluated with every patient. In addition, students engaged in research participate in the IRB process as outlined by the university.

Student assessment methods/measures of student learning related to the first student learning outcome objective is provided here as an **EXAMPLE** of the assessment process across the 3-year program. Each objective has multiple measures associated with the measure, similar to this example.

Desired Student Outcome	Assessment mechanisms/Measures	Findings
Demonstrates mastery of basic science, prosthodontics and maxillofacial prosthetic clinical sciences knowledge.	Written and oral examinations in didactic and clinical courses, including clinical proficiency exams.	All students have performed at or above a 3.0/4.0 in didactic and clinical courses.
	Faculty performance evaluations in various Treatment Planning Seminars & Prosthodontic Patient Presentation Seminar	All students have received a mean score of 3 (passing) or better on faculty evaluations
	Performance on American College of Prosthodontics Mock Board Examination	Over the past five years (students graduated from 2016 to 2020), 22/29 graduate students have either increased or maintained their scores on the ACP Mock Board Examination.
	Performance in MSD Qualifying Oral & Written Examinations	Over the past five years (students graduated from 2016 to 2020), 29/29 graduate students have successfully passed the MSD Qualifying Oral & Written Examinations. 2/29 required some remediation in certain areas before successful completion.
	Pass/Non Pass rate on American Board of Prosthodontics Examinations	Over past 6 years, 22 of the 29 graduated students have passed the Written Portion of the American Board of Prosthodontics. 7/29 have successfully completed all portions American Board of Prosthodontics Examination and have become Diplomates.

Name of Advanced or Specialty Program: Oral and Maxillofacial Surgery

The specialty of Oral and Maxillofacial Surgery (OMFS) requires an additional 48 months of clinical and didactic education and training, primarily based in the hospital setting. Admission to the program is competitive, with about 180+ applicants for three positions annually. Applicants must have maintained a high academic standing in their predoctoral education program and have graduated in the upper quartile of their class. Additionally, all applicants must take standardized national examinations (NBDE and CBSE) indicating passage and scores above the national median for medical students in the Comprehensive Basic Science Examination (CBSE or its USMLE Step 1 equivalent).

As with most advanced patient care programs and residencies, the stated resident outcomes incorporate many of the aspects of knowledge in the specialty. The mission incorporates that of the American Board of Oral and Maxillofacial Surgery:

Mission: Training of Oral and Maxillofacial Surgeons to be providers of safe and optimal care, recognizing the following core values espoused by the American Board of Oral and Maxillofacial Surgery (ABOMS):

- Patient first
- Integrity
- Fair and valid (current and accepted scientific norms)
- Relevant (contemporary and widely recognized by professional and lay community)
- Gold standard of excellence

And, in fulfillment of the CODA mission, ***“to serve the public and profession by developing and implementing standards that promote and monitor the continuous quality and improvement”*** of the IU OMFS residency academic program.

This mission seeks to establish the following:

- 1/ Rigorous, time-tested and evolving didactic components to advanced education which form the foundation of oral and maxillofacial surgical practice.
- 2/ Provide for a core of on-service (OMFS) clinical experiences over the scope of practice leading to a level of “proficiency”.
- 3/ Ensure a core of off-service allied medical and surgical experiences which meet the standards for accreditation as provided by CODA and overseen by GME.
- 4/ Establish a means by which residents are directly evaluated by:
 - Annual testing (OMSITE)
 - Periodic (semi-annual) evaluation by the faculty as to resident performance, aptitude, professional development, ethical and moral standards of conduct.
 - Weekly and daily feedback, as indicated, in the spirit of immediate and ultimate enhancement of the educational experience and acquisition of clinical skill sets.
 - Weekly didactic sessions of lecture, discussion and review format.
 - And, be in accordance with Indiana University Graduate Medical Education (GME) standards for educational achievement and training at the graduate medical level.

5/ Provide and ensure safe, healthy and a nourishing environment for the learning and application of requisite OMFS skills.

6/ Annual review of resident progress to document and strategize for preparation to satisfy the written and oral components of the certification process of the ABOMS.

7/ Incorporate external sources of knowledge acquisition, as indicated and appropriate:

- Acceptable review courses (endorsed by the AAOMS, ABOMS, ACOMS and other recognized educational bodies).
- Individually designed courses to address specific identified needs.

Graduating Residents in Oral and Maxillofacial Surgery will be able to:

1. demonstrate scientific knowledge and acquired diagnostic and therapeutic skills involved in surgical management of conditions affecting the dentition, jaws and facial region
2. apply this knowledge and these skills requisite to the diagnosis and treatment of the above conditions.
3. prepare and communicate strategies for the implementation of the above at the patient and professional/collegial level
4. critically evaluate the appropriate historical and current literature regarding diagnostic, surgical, therapeutic and other critical areas of maxillofacial surgical practice.
5. participate in multi-disciplinary strategies and care of patients requiring maxillofacial surgery and attendant needs.
6. plan and interact with colleagues and clinical staff on a professional level consistent with their level of training and experience.

Alignment with the Principles of Graduate and Professional Learning

The objectives listed above align with the PGPLs and examples of how each principle might be conceptualized within the program are provided here.

PGPL #1 Demonstrate the knowledge and skills needed to meet disciplinary standards of performance.

Residents demonstrate the mastery of the knowledge and skills in OMFS during written and oral assessments within the program, demonstrate the integration and application of the knowledge and skills in daily patient care (both ambulatory and in-patient), and by successfully challenging the written, oral and patient-based examinations to become ABOMS certified.

PGPL #2 Communicate effectively with peers, clientele, support groups and the general public.

Complex treatment plans require the ability to communicate with patients and families/care givers to determine desires and needs, as well as the ability to share the expert's knowledge in a manner that is clear to the patient. These must be culturally and intellectually and psychologically formulated so that the patient is able to make an informed decision about their/loved one's care. Treatment planning evaluations, faculty interaction and observation during patient care, and final formulative strategies to communicate the above in a timely, fair and uncompromising manner.

PGPL#3 Think critically and creatively to improve practice in the field.

Patients in need of OMFS management often have disease and medically-sensitive or compromised conditions which dictate specialist care, thereby constant self and peer-driven strategies are put into place (required by medical and hospital systems) to address these ever-evolving needs.

PGPL#4. Meet all ethical standards established for the discipline.

This is extensively outlined in the preface above, in line with the accrediting bodies (CODA) and professional organization responsible (ABOMS) for meeting these standards.

Examples of student objectives, assessment mechanisms and use of information for program improvement are listed below in the tables that follow.

Desired Resident Outcome	Assessment mechanisms/Measures	Findings
Demonstrates mastery of basic science, surgical acumen and skills, implementation of clinical sciences and knowledge appropriate to maxillofacial surgical practice.	Written and oral examinations	All maintain above average in-service examination scores (OMSITE)
	Faculty performance evaluations in on-service performance	All residents have satisfactorily progressed to the next level of surgical competency (MedHub evaluations)
	Faculty performance evaluations in off-service performance in anesthesia, clinical medicine, surgery, trauma, critical care, allied surgical disciplines	Evaluations, both numeric and written observations, indicate that all residents over the last three years have completed with above average evaluations as compared to other medical and surgical residents in those specific disciplines
	Performance in Oral and Maxillofacial Surgical In-service Training Examination (OMSITE)	Annual examination that all CODA OMFS programs provide and administer whereby individual, program-specific and national standings are indicated relative to all fields within the specialty. All residents have performed above the national median for the past two years.
	ABOMS certification, both written and oral.	All residents have passed, first attempts, for both components of the certifying examination in OMFS for the past five years.
	Periodic core-specific examinations (eg, Maxillofacial Pathology)	Written examination for all levels of training to be taken and evaluated for areas of proficiency and deficiency)