INDIANA UNIVERSITY

SCHOOL OF DENTISTRY
IUPUI

**Indiana University School of Dentistry
Doctor of Dental Surgery Program**

IUPUI Program Review and Assessment Committee 2015 Report

Indiana University School of Dentistry
Doctor of Dental Surgery
PRAC Report, 2014-15

Overview of Programs
The Indiana University School of Dentistry (IUSD) offers a certificate program in Dental Assisting, an Associate of Science degree in Dental Hygiene (DH), a **Doctor of Dental Sciences (DDS)** and post-graduate Advanced Education and Specialty programs degrees in Periodontics, Pediatric Dentistry, Oral Surgery, Endodontics, Prosthodontics, Orthodontics, Operative Dentistry, Dental Materials and Preventive Dentistry.

This report contains the review of the DDS program which is a graduate level program.

Introduction: DDS PROGRAM
Dental education in the U.S. is competency-based. The accrediting body of dentistry, the Commission on Dental Accreditation (CODA), permits each dental school to establish the specific learning outcomes and associated measures that, when demonstrated independently by each student, are deemed to be evidence of successful completion of the requirements of the degree. IUSD maintains detailed student-level tracking of all competencies via its outcomes measures documentation. At the program and institutional level there are additional measures used to track the progress of the school towards the stated Mission, Goals, and Vision of IUSD. http://www.iusd.iupui.edu/about-us/mission-and-goals/).

Accreditation and Ongoing Institutional and Program Review
In 2013 IUSD became the first dental school in the country to be accredited using the revised CODA standards.   The site visit was highly successful and the school was fully accredited. Ongoing Institutional and Program review is an expectation that must be demonstrated by all accredited dental programs. The DDS Curriculum and Assessment Committee (CAC), DDS Student Progress Committee and the IUSD Institutional Outcomes Assessment Committee (IOAC) are examples of standing committees charged with ongoing review of the predoctoral program, individual student achievement and the effectiveness of the institution, respectively.

Data used each year in the course and program reviews include:
- Analysis of student performance in courses, clinics, discipline competency examinations, and on National Written and Regional Clinical Boards
- Course syllabi
- Course/module review forms (completed by instructor)
- CoursEval reports (the electronic data base of student course evaluations)
- Student focus groups reports
- Senior Exit Interviews (IUSD and American Dental Education Association)

This information is collected by the IUSD Office of Academic Affairs and then routed to the appropriate faculty member, standing committee of the faculty council or administrative office in order to identify areas of strength or deficiencies and for recommendations for improvement.

STUDENT LEARNING OUTCOMES, DOCTOR OF DENTAL SURGERY

In addition to successfully completing the curriculum, IUSD has 20 Competencies that each student must independently challenge and successfully complete to be deemed competent for the beginning practice of general dentistry and to be eligible for graduation. The Competencies are developed by the discipline or disciplines working together, and are

adopted by the Faculty. The specific competency assessments that are used to evaluate student competence are outlined in the IUSD Competency Manual, which serves to guide faculty and students in the preparation for, and evaluation of, student competence. Each clinical assessment, developed by the related disciplines, is used as a direct measure of at least one IUSD Institutional Competency, and most, if not all, map to all four of the IUPUI PGPLs. Students are tracked **individually** in their progress toward each of these competencies (student learning outcomes).

The IUSD Institutional Competencies for the Dental graduate:

The IUSD graduate must be competent in:

1. patient assessment, diagnosis, and referral (PGPL 1,2,3,4)
2. treatment planning (PGPL 1,2,3,4)
3. communicating and collaborating with individuals and groups to prevent oral disease and promote oral and general health in the community (PGPL 1,2,3,4)
4. control of pain and anxiety, clinical pharmacology, and management of related problems (PGPL 1,2,3,4)
5. prevention and management of dental and medical emergencies (PGPL 1,2,3,4)
6. detection, diagnosis, risk assessment, prevention, and management of dental caries (PGPL 1,2,3,4)
7. diagnosis and restoration of defective teeth to form, function and esthetics (PGPL 1,2,3,4)
8. replacement of teeth including fixed, removable and dental implant prosthodontic therapies (PGPL 1,2,3,4)
9. diagnosis and management of periodontal disorders (PGPL 1,2,3,4)
10. prevention, diagnosis and management of pulpal and periradicular diseases (PGPL 1,2,3,4)
11. diagnosis and management of oral mucosal and osseous disorders (PGPL 1,2,3,4)
12. collecting and assessing diagnostic information to plan for and perform uncomplicated oral surgical procedures (PGPL 1,2,3,4)
13. recognizing and diagnosing malocclusion and space management needs (PGPL 1,2,3,4)
14. discerning and managing ethical issues and problems in dental practice (PGPL 1,2,3,4)
15. understanding and application of the appropriate codes, rules, laws and regulations that govern dental practice (PGPL 1,2,3,4)
16. behavioral patient management and interpersonal skills (PGPL 1,2,3,4)
17. understanding the fundamental elements of managing a dental practice(PGPL 1,2,3,4)
18. performing and supervising infection control procedures to prevent transmission of infectious diseases to patients, the dentist, the staff and dental laboratory technicians (PGPL 1,2,3,4)
19. providing evidence-based patient care in which they access, critically evaluate, and communicate scientific and lay literature, incorporating efficacious procedures with consideration of patient needs and preferences (PGPL 1,2,3,4)
20. recognizing the role of lifelong learning and self-assessment to maintain competency (PGPL 1,2,4)

Student preparation for, and evaluation of, competence occurs as an integrated part of all aspects of the predoctoral program with multiple measures of student mastery of knowledge, skills, behaviors and attitudes. Decisions as to the numbers and types of experiences students must have prior to attempting summative written or clinical competency examinations are determined by the disciplines most directly responsible for that content and are reviewed annually and revised as needed.

Formative and summative assessments utilized in the program are summarized in Table 1.

TABLE 1. Formative and Summative Assessments in Pre-doctoral Dental Education		
Assessment Area	**Formative Assessments**	**Summative Assessments**
Clinical Procedures	• Applied pt mgmt (GLA) activities • Daily comp care clinical assessment • Rotation clinical grading • Lab examinations • OSCE • Rounds presentations • Written examinations	• Case-based assignments • Clinical competency assessments • Evidence-based literature critique • Lab examinations • OSCE • Written examinations
Problem Solving	• Applied pt mgmt (GLA) activities • Daily comp care clinical grading • Rotation clinical grading • Lab examinations • OSCE • Reflective writing, including ethics and behavioral sciences • Rounds presentations • Written examinations	• Case-based exams • Clinical competency assessments • Lab examinations • OSCE • Reflective writing • Written Examinations
Clinical Reasoning	• Applied pt mgmt (GLA) activities • Daily comp care clinical grading • Rotation clinical grading • Lab examinations • OSCE • Reflective writing • Rounds presentations • Written examinations • Annotated Bibliography Assignments	• Case-based exams • Clinical competency assessments • Lab examinations • Reflective writing • Written Examinations
Professionalism	• Applied pt mgmt (GLA) activities • Clinical professionalism 360 evals • Daily comp care clinical grading • Rotation clinical grading • Ethical sensitivity assessment • OSCE • Reflective writing • Rounds presentations • TJE assessment • Written examinations	• Case-based exams • Clinical competency assessments • OSCE • Reflective writing • Written examinations
Ethical Decision-making	• Applied pt mgmt (GLA) activities • Clinical professionalism 360 evals • Daily comp care clinical grading • Rotation clinical grading • Ethical sensitivity assessment • OSCE • Reflective writing • Rounds presentations • Written examinations • Annotated Bibliography Assignments	• Case-based exams • Clinical competency assessments • OSCE • Reflective writing • Written examinations

TABLE 1. Formative and Summative Assessments in Pre-doctoral Dental Education		
Assessment Area	Formative Assessments	Summative Assessments
Communication Skills	• Clinical professionalism 360 evals • Daily comp care clinical grading • Rotation clinical grading • OSCE • Reflective writing • Rounds presentations • Written examinations • Annotated Bibliography Assignments	• Clinical competency assessments • Critical incident reports • OSCE • Reflective writing • Written examinations

In dentistry clinical assessments are highly authentic, and "capstone" student experiences are very similar to those required of a practicing dentist. As an example, a student's ability to diagnose, treatment plan, clinically prepare and evaluate the finished work for a patient requiring multiple dental procedures is done by direct evaluation of these skills (patient management and communication, diagnosing, treatment planning, clinically providing the needed treatment and then evaluating the outcomes of the treatment) within the context of an actual patient. Students who are not successful on competency examinations are remediated as needed, given additional opportunities to master the skills and then must attempt the competency again. Students are not eligible to graduate until they have demonstrated competence for all 20 Institutional Competencies in addition to the successful completion of all of the required courses in the curriculum.

Indirect Measures

Indirect measures are also used to evaluate student outcomes and programmatic effectiveness. Student Focus Groups are used to collect student feedback on a broad range of issues, including unplanned curricular redundancy, currency of content in courses and the effectiveness of new curricular components incorporated into the program. IUSD has a student-run, faculty attended Student Curriculum and Assessment Committee that meets regularly and which provides input directly to the DDS Curriculum and Assessment Committee (CAC). In addition, each DDS class has a representative on the CAC, and students are welcomed to provide their insight.

Each DDS student completes a Senior Exit Survey for the American Dental Education Association and an additional Exit Survey for IUSD. These surveys provide information about student satisfaction with advising, the curriculum, their sense of preparedness to practice and job placement. Recent exit interviews indicate that approximately 25% of IUSD DDS graduates go on to advanced programs; and most others who had searched for a position of employment had secured a job that they would begin upon obtaining their license.

IN 2014-15, it was recognized that there was a need to have better detail about past graduates, their employment, and how well prepared employers felt the new graduate was initially.   The Office of Admissions and Student Affairs is evaluating products that would improve collecting this data. It is anticipated that this would improve our understanding regarding how IUSD students function in their first post-education setting.

Student outcomes for each of the 20 IUSD Competencies are continuously tracked, are compiled annually for use by Faculty Standing Committees in planning and decision making. Other student measures, including Focus Group Data and Senior Exit Surveys provide data used in program development, benchmarking, and for curricular and advising assessment.
1. IUSD Progress Committee to certify students are prepared for the independent practice of dentistry prior to approving the student for graduation.
2. Institutional Outcomes Assessment Committee to evaluate the effectiveness of the program and curriculum.

3. Curriculum and Assessment Committee for ongoing curricular review.
4. Department, Discipline, Course and Module faculty to evaluate curriculum and classroom assessment, competency measures, and content.

2014-15 Examples of Program Review and Revisions

Outcomes of Treatment Competency and Evidence-based Dentistry in the Curriculum.

The Outcomes of Treatment Clinical Competency (OTC) is a capstone assessment that incorporates the Common Standards Assessments (ethical treatment of the patient, professionalism, infection control) with discipline-specific skills. This Competency provides the capstone evidence for a student's demonstration of student application of evidence-based dentistry (EBD) to patient care, which is IUSD Competency *#19: Graduates must be competent in providing evidence-based patient care in which they access, critically evaluate, and communicate scientific and lay literature, incorporating efficacious procedures with consideration of patient needs and preferences.* The Competency maps to all four of the IUPUI Principles of Graduate and Professional Learning.

This capstone Competency assessment takes place in the D4 year, but foundational content is provided in D1, and assessment of application of EBD to scenarios and patients occurs in all four years of the program. Since 2013, the Curriculum and Assessment Committee and the Office of Academic Affairs have been evaluating the outcomes of the evidence-based dentistry (EBD) curricular content, using course syllabi, EBD-related MCQ on exams, assignments and student focus group and survey responses related to EBD.   A revision to the Competency assessment Instrument that included a more overt assessment of the inclusion of EBD was implemented in the Clinical Rounds setting and was required for students graduating in the class of 2014, however, students reported in the Exit survey that they still felt only "somewhat prepared" in this area. During AY 14-15, a grant-funded curricular revision to the EBD elements of the DDS program was implemented, with significant changes in content and alignment of assessment instruments across the four years of the program, including the mapping of desired EBD student learning outcomes at the course and program level. Student focus group data, the D4 Competency presentations and EBD course level assignments were collected to determine the impact of the curricular changes.

The evaluation of student assessment in the Class of 2018 (D1) EBD related courses indicates that students mastered the course and program level EBD learning outcomes. Additionally, using a pre-post intervention assessment of EBD Knowledge, Attitudes and Accessing Habits (KACE survey), D1 students demonstrated strong improvement in the foundational elements of EBD and in their attitudes toward EBD.

The development of the EBD curriculum and assessment of students in this area will continue and the Class of 2018 will be tracked with regard to their EBD habits and attitudes as well as progress toward and attainment of the Competency.

Program-level Curriculum Assessment: The IUSD Curriculum and Assessment Committee

CODA Standard 2-7 states:
> The dental school **must** have a curriculum management plan that ensures:
> a. an ongoing curriculum review and evaluation process which includes input from faculty, students, administration and other appropriate sources;
> b. evaluation of all courses with respect to the defined competencies of the school to include student evaluation of instruction;
> c. elimination of unwarranted repetition, outdated material, and unnecessary material;
> d. incorporation of emerging information and achievement of appropriate sequencing.

At IUSD, the policies and work that support this Standard are undertaken by the Curriculum and Assessment Committee.

The previous four-year curriculum assessment cycle led to the recommendation that the academic calendar be significantly revised and that many courses be restructured along a discipline basis. These recommendations were implemented in the fall of 2014. During AY 14-15, the Curriculum and Assessment Committee (CAC) began the first portion of the new four-year curricular review cycle of the DDS program. The D1 fall semester was reviewed in depth, including evaluation of syllabi and course content, course director comments, student assessment of courses and student focus groups. Some of the evaluation topics, recommendations and current status are provided as examples.

Evaluation topic	Problem	Recommendation	Status
Course structure	"Mega-courses" with multiple modules obscure student achievement or identification of problem areas & create problems with campus-level transcripts.	Create independent courses from the courses that were combined to create the Megacourse.	All didactic courses have been created based on discipline and content. Process of creating independent clinical sciences courses will begin in the Fall of 2015
Academic Calendar	24 and 22 week didactic semesters leave little time for students and faculty to engage in service learning, research and other activities such as studying for Boards (students) or course planning and renewal (faculty).	Align start and stop dates with IUPUI calendar as much as possible. Restructure summer sessions to permit enrichment activities for both students and faculty.	Completed: As of Fall 2014, three years of the four in the DDS program begin on the same date in August with 17 week semesters for fall and spring. Summer sessions (11 weeks) do not contain didactic courses and are available for international service learning, Board preparation, etc.
Early Clinical Entry	Students expressed strong preference for earlier clinical entry and meaningful patient contact prior to D3	Identify student learning outcomes that are reasonable for D1 and D2 students which would support their engagement in meaningful preparation for earlier clinical entry.	Four courses, spanning D1 and D2 Fall and Spring terms were created with a focus on early development and application of patient care skills.
Dental Public Health sequencing in the program	D3 students and Public Health faculty felt that the Public Health Dentistry course should be earlier in the program.	Develop and implement the course for a D1 student to establish the foundations for meaningful community and public health experiences in the clinical years.	Discipline faculty worked to redesign the course for the more novice D1 learning. Learning outcomes and content were adjusted. The course was taught multiple times in one academic year in order to move the course to the D1 year, beginning in Fall 2015.

STUDENT OUTCOMES, 2014-15

Graduation rates for the Doctor of Dental Surgery program are extremely high, averaging at least 95% of students graduating in four years. For the Class of 2015, the original D1 cohort of 104 students, 100 graduated with their class (96%). The Student success on written and clinical licensing exams is also excellent: 100% of the Class of 2015 passed NBDE Part I and 99% have passed NBDE Part II. In addition, all members of the Class of 2018 have successfully completed all 20 of the Institutional Competencies.

SUMMARY

The IUSD Institutional Competencies define what a competent graduate will be able to do upon graduation. Multiple assessments are used to evaluate students across four years of the program and include the assessment of broad range of attributes. Competency Assessment Exams serve as the final measurement of the defined set of knowledge, values and skills that have been developed through the formative daily feedback process.

The School has multiple processes in place to evaluate the content of the Doctor of Dental Surgery program, the measurement instruments used in student evaluation and the outcomes of those assessments ensure that there is meaningful, ongoing evaluation of student learning. There are processes in place that provide for ongoing evaluation of the program as a whole which result in meaningful improvements in student learning.