Welcome to the first edition of the IUSD Student Research Group newsletter!

by Hani Ahdab, D4

Greetings! I would like to first thank you for your interest in student research and welcome you to the inaugural edition of the Student Research Group newsletter. We hope this newsletter will become a school tradition that will accurately represent the IUSD research community. I want to begin by briefly introducing my research involvement here at the school. I initially became interested in conducting research during my first year of dental school as I found it to be a great opportunity to learn more about the research process and become acquainted with various faculty members. I initially did not know what type of research I wanted to conduct, but I found a home in the dental biomaterials laboratory working for Dr. Marco Bottino. During my second year of dental school I began working on a project entitled “Oxidative Burst of Neutrophils Induced by Doxycycline Containing Drug Delivery Systems.” I was fortunate to be able to present this project at various venues including the IADR and ADA annual meetings. Participating in this research project has opened up many great opportunities for me and has become a truly valuable learning experience. If you are interested in research I highly suggest attending SRPP meetings every other Tuesday evening in the Gorman Room on the second floor or contacting a faculty member that is working in an area that interests you. In closing, I would like to thank Stuart Ryan for all his hard work in putting together the first edition of the SRG newsletter.

-Hani Ahdab
IUSD Class of 2014
SRG President

IUSD Student Research Day 2013
A huge success! Take a look at the award winners from this year’s research day and their projects.

Interested in getting involved in research during the D2 school year?
Check out this interview with D3 student Anya Jouravlev to get a better idea of what to expect.

Meet Your 2013-2014 Student Researchers!
Get a look at the upcoming Student Research Group members and their exciting projects!
Research Day 2013
by Allison Scully, D3

The Indiana University School of Dentistry Research Day has been an annual tradition since 1993 and is a means of exhibiting the school’s research efforts for the local community. This year, we showcased the work of over 90 students from IUSD as well as students from the University of Detroit Mercy School of Dentistry and the University of Louisville School of Dentistry.

The ceremony began with an introduction from Dean Williams. Dr. Mary MacDougall, the keynote speaker, then took the stage for her discussion on the topic of “Probing the Lessons Learned from Dental Genetic Disorders.” She is the James R. Rosen Chair of Dental Research and director of the Institute of Oral Health Research at the University of Alabama at Birmingham School of Dentistry. She is also the past president of the International Association for Dental Research.

Students, faculty, and staff were then presented with awards for their research presentations and contributions. Dr. David Brown from the department of prosthodontics was awarded the Distinguished Faculty Award for Teaching. Dr. Anderson Hara, assistant professor of preventive and community dentistry, was awarded the Distinguished Faculty Award for Research.

The IU Trustees Teaching Awards, which celebrate outstanding dedication to education throughout the university, were awarded to five IUSD faculty members: Dr. Judith Chin, pediatric dentistry, Ms. Lorinda Coan, dental hygiene, Dr. Laura Romito, oral biology, Dr. Joseph Legan, endodontics and Dr. Andréa Zandoná, preventive and community dentistry.

The predoctoral student awards provided much excitement for the audience, which was comprised of many DDS, hygiene, and dental assisting students. Austin Starr, mentored by Drs. Bottino and Gregory, received both the Procter & Gamble Award for Excellence in Preventive Oral Health Care and the Indiana Section of the AADR Interschool Dental Student Research Award for his project entitled, “Aged

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Metronidazole-Containing Drug-Delivery Systems: Antibacterial Efficacy against *P. gingivalis*.

The Indiana Section of the American Association for Dental Research Staff Award was given to Mr. Clif Duhn, research analyst at the Oral Health Research Institute for preventive and community dentistry. Mary Salama was awarded the Johnson & Johnson Undergraduate Student Award for her presentation “The Effects of *Lepidium Sativum* on Osteoblasts.” The Elizabeth A. Hughes Dental Hygiene Case Report Award was presented to Mr. Gabriel Rangel and Ms. Amy Fuhrman for their project “BP 200/100 mmHg- Would you Treat This Patient?”

Kornchanok “Joy” Wayakanon, a student in the graduate operative program mentored by Dr. Angela Bruzzaniti, was awarded the Delta Dental Award for Innovation in Oral Care Research for her project entitled, “Kalirin: Potential Role in Osteocyte Function.” The Indiana Dental Association Best Clinical Case Report Award was presented to Dr. Ryan Baker, a master’s degree student in endodontics, for his clinical case presentation, “Endodontic Management: Infected Immature Tooth with Spontaneous Root Closure and Dens Invaginatus.”

The Maynard K. Hine Award for Excellence in Dental Research for Best Research Manuscript was awarded to Dr. Nawaf Labban (mentored by Dr. L. Jack Windsor) for the manuscript “Shilajit: A Novel Regulator of Cartilage Repair.” Dr. Alaa Sabrah, a PhD student in dental science mentored by Drs. Bottino and Gregory, was awarded the Shofu Dental Research Award for her research “Antibacterial Activity of Intra-canal Medicaments Used in Pulp Regeneration.”

D4 student Tyler Kimmel (mentored by Dr. Karen Yoder) was awarded the Cyril S. Carr Research Scholarship for overall excellence in research at the predoctoral level. D3 student Allison Scully, mentored by Dr. Gabriel Chu, won the American Student Dental Association’s IUSD Student Research Group Award for her project “Mechanical Property Evaluation of Porous 13-93 Bioactive Glass and GL1550 Borate Glass 3D Scaffolds.”

The ADA/Dentsply International Student Clinician Award was presented to Jordan Jacobs (D4) for his project with Dr. Laura Romito entitled, “Knowledge, Attitudes and Practices Regarding Hand Hygiene.”

Student researchers presented nearly 100 posters at the event. Dental students and community members had the opportunity to learn about the projects by talking to the researchers during two hour-long sessions. Students also had time to visit sponsors in the Exhibit hall including: Delta Dental Foundation, Johnson & Johnson, Procter & Gamble/Crest, Shofu Dental Corporation, Indiana Dental Association, and the IU component of ASDA.
Is Research Possible During 2\textsuperscript{nd} Year?

A Q&A with student researcher Anya Jouravlev

by Stuart Ryan, D2

Dental students interested in research often worry about the time commitment involved in both creating a research proposal and carrying out the experiments. Students have also expressed concerns that the demands of the second-year curriculum do not leave any extra time to get involved with a research project. The Student Research Group (SRG) hopes to dispel some of the rumors surrounding student research and help share some first-hand experiences with students who have completed research projects during the busy D2 year. In this issue, we interview current D3 student Anya Jouravlev. She completed a project last year entitled, “Effect of Staining and Stain Removal on Dental Sealant Microleakage.”

Q: Anya, were you initially a little nervous to conduct a research project during your busy D2 school year? Had you heard any rumors about the time commitment involved in doing student research?

I conducted research at the Oral Health Institute through the MURI/UROP program during the summer of my sophomore year at IUPUI, so I was familiar with the time research requires. However, I was not prepared for the time demands of the 2\textsuperscript{nd} year of dental school. I planned to finish the majority of the research work during summer break in hopes of leaving me with ample amount of time for schoolwork. It didn’t turn out the way I planned it, but that is why it is called research 😊. Sometimes you have to adjust the protocol depending on the results – or lack of them – and spend more time on one part or the other.

Q: What did you do to help manage your time between D2 coursework, lab work, extracurricular activities, and your research project?

I worked closely with my mentor to plan out the procedure and eliminate possible errors. It’s very important to keep in mind what specimen you will be working with. If an experiment involves live bacteria or human subjects, then the procedure may be time-sensitive and certain steps may not be delayed, like a particular step in the life cycle of the bacteria. If you work with data collection, then your schedule is more flexible and you can adjust the steps of the experiment around your monthly exams and lab practicals, so as you can see it definitely involves time management. You could start a research experiment and go over to the SIM lab to practice and then come back. I also did most of my article research in the summer and wrote my background and methods section ahead of time. It helped me plan out the schedule and predict possible pitfalls ahead of time. Take pictures of the procedures you are doing to add to your paper/poster later and take detailed notes in the lab notebook – it will help you later with writing the paper and figuring out possible errors/trends.

Q: Who was your faculty research mentor and how was your interaction with him/her?

I have worked with Dr. Gregory and Dr. Soto in the past. Both were very helpful in guiding and planning the research project, providing templates, standard operating protocols, discussing the results of an experiment and how to move forward. Both were also very understanding of the rigorous schedule of the dental student. I think it is important to have a discussion with your mentor about the time you have available and make sure the anticipated procedures fit into your schedule.

Q: How much time would you say you spent each week/month working on your research project?

It really depends on the specificity of the project. It will vary greatly depending on the results of the experiments and the goals of the research. I have worked in lab on my project for approximately 2 weeks during the summer every day preparing the specimens, then a few days (afternoons) a week during my summer semester, and then several times a month during the fall. Article research, writing and analysis I did at home mostly during summer and winter breaks. Plan to spend time researching the background information, writing the protocol, meeting with mentors, and learning the technique of a certain procedure. You will then be conducting experiments, redoing and readjusting them, preparing a poster, and finally presenting your findings. It sounds like a lot, but with good time management, wonderful mentors and staff, it is a great experience and a very achievable task.

Q: What advice would you give to students interested in research?

Talk to someone who has done it: students, mentors, and professors. Identify an area you are interested in and talk to the mentors to choose an ongoing research project they have or create your own. Attend SRPP meetings; they are an amazing informative source to keep updated on the latest research projects, to get inspired to research a new topic, or simply to see what is involved in the process of conducting research. School is a perfect time to do research and challenge yourself; and with proper time management and planning, you will be successful. Good luck and don’t hesitate to ask any questions you might have!
2013-2014 IUSD Student Research Fellows

These students will be completing individual research projects over the course of the next year and will be presenting at IUSD Research Day 2014 in the spring!

**DDS Class of 2016:**

**Laura ALBRECHT**
Project: *The Antimicrobial Effects of Magadi on Biofilms of Streptococcus mutans and Enterococcus faecalis*
Faculty Mentor: Richard Gregory, Oral Biology

**Michael DAETWYLER**
Project: *Comparison of Antimicrobial Activity of Propolis Using Three Delivery Methods*
Faculty Mentor: Ygal Ehrlich, Endodontics

**Melissa KANE**
Project: *Determining the Ability of Membrane Proteins of S. crista tus to Inhibit P. aeruginosa Biofilm*
Faculty Mentor: Richard Gregory, Oral Biology

**Blake BALLenger**
Project: *Effect of Polymer Coating on the Degradation and Protein Release of Polymer-Infiltrated Bioactive Glass*
Faculty Mentor: Gabriel Chu, Division of Dental Biomaterials

**Joshua EVANS**
Project: *The Effects of Polyphenols on Biofilm Formation and Growth in a comC Gene-Deficient Strain of Streptococcus mutans*
Faculty Mentor: Richard Gregory, Oral Biology

**Chau LEMINH**
Project: *Combined Effects of Nicotine and Tea Polyphenols on Streptococcus mutans Binding to Fibronectin*
Faculty Mentor: Richard Gregory, Oral Biology

**Stuart RYAN**
Project: *Effect of Cervical Vertebrae Angulation on Airway Dimensions in Orthodontic Patients*
Faculty Mentor: Ahmed Ghoneima, Orthodontics and Oral Facial Genetics
2013-2014 IUSD Student Research Fellows (cont.)

**DDS Class of 2015:**

**Rocky ANDERSON**
Project: *Evaluation of the Atraumatic Restorative Treatment Effectiveness to Restore the Teeth of Yucatan Children in a Rural Community in Mexico*
Faculty Mentor: Armando Soto, Preventive and Community Dentistry

**Andrew RABER**
Project: *Evaluation of Salivary Biomarkers for Chronic Periodontitis in Diabetes Patients*
Faculty Mentor: Mythily Srinivasan, Oral Pathology, Medicine, and Radiology

**DDS Class of 2014:**

**Bolanle BALOGUN**
Project: *Morphological Changes in the Sphenoid Sinus Related to Age and Sexual Dimorphism*
Faculty Mentor: Ahmed Ghoneima, Orthodontics and Oral Facial Genetics

**Kristin CRIDER**
Faculty Mentor: Lawrence Garetto, Oral Pathology, Medicine, and Radiology

**Erin WILBERG**
Project: *Determining the Effect of Arginine Analogs on P. gingivalis Biofilm Formation*
Faculty Mentor: Richard Gregory, Oral Biology

**Tara LUEDERS**
Project: *A Novel Approach to Assessing Orthodontic Bracket Placement Teaching Techniques: A Pilot Study*
Faculty Mentor: Kelton Stewart, Orthodontics and Oral Facial Genetics
D3 Student Researchers Present at Prestigious Conference

by Stuart Ryan, D2

During the weekend of October 25-27, two IUSD dental students presented their research projects at the 2013 Hinman Student Research Symposium in Memphis, TN. The event was held at the historic Peabody Hotel and consisted of presentations from the top student researchers across the nation.

D3 student Annissa Michael presented her work, “Effects of Arginine Deiminase-Like Enzymes on Porphyromonas gingivalis Biofilm.” She worked with Drs. Richard Gregory and Karen Gregson on the project.

D3 student Allison Scully presented her work, “Mechanical Property Evaluation of Porous 13-93 Bioactive Glass and GL1550 Borate Glass 3D Scaffolds.” She worked with Dr. Gabriel Chu on the project.

Both students said it was a wonderful experience not only to present their abstracts at the symposium, but also to listen to the work of other dental students across the country. “I learned a lot from all of the presentations and it was really great to interact with other students who are just as passionate about dental research as we are. It was a wonderful weekend,” said Scully.

The weekend consisted of several research exhibits, a magnificent banquet, and even a tour of Elvis Presley’s famous Graceland mansion. Both Scully and Michael strongly encourage fellow students to apply for the Hinman Symposium next year.
Thank you for your interest in the first edition of the Student Research Initiative! We would like to extend our most sincere gratitude to the university, faculty, and staff for their ongoing support of student research at IUSD. We look forward to producing future issues of this newsletter to keep the campus informed of all of the exciting student research efforts going on in the dental community. The Student Research Initiative team would like to extend a special thank you to our faculty mentor, Dr. Richard Gregory, for his photographs, inspiration, and guidance in producing this inaugural newsletter.

IUSD Student Research Group Officers

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