Strategies for Preparing Future Osteopathic Physicians for Conducting Research Becoming Successful Evidence-Based Medicine Practicing Physicians

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Edward Via College of Osteopathic Medicine
Virginia Campus
The MISSION of the Edward Via College of Osteopathic Medicine (VCOM) is to prepare globally-minded, community-focused physicians to meet the needs of rural and medically underserved populations and promote research to improve human health.
VCOM Goals

Goals

To provide education in the art and science of osteopathic medicine

To generate, promote, and disseminate medical knowledge in disease prevention, chronic disease management, community health, and public health practices through Appalachian and International outreach programs

Priority

To provide osteopathic medical education and research focused on evidence based medicine, patient centered care, the body’s innate ability to heal, the relationship of structure to function, and the clinical application of osteopathic manipulation.
Research Course

Research Course Description:

- Research can greatly enhance a career in medicine.
- Student research is ideal for the motivated, creative, and inquisitive student. Therefore...

- The course was developed to provide students with an opportunity to learn concepts and acquire research central to the research experience.
- The students conducted original research.
- The students practiced scientific thinking and learned the scientific processes, which should advance the student in their educational and career goals.
Research Course

Course Learning Objectives

- Successfully apply your knowledge of clinical, biomedical, public health research to answer research questions
- To gain experience understanding published scientific research studies
- To understand the study design and the methodology section of scientific research studies
- To understand and interpret the results from the statistical analysis section of scientific research studies
- To successfully conduct searches in PubMed or other sites
Research Course

- To learn the purpose of the IRB application, and the process of preparing an IRB application.
- To learn the process of preparing a scientific poster
- To learn the process of writing an abstract (and a manuscript) for publication.
- To start a research project
Research Course

Research and Biostatistics Course

Post-baccalaureate Program

- Class of 2012 - 40 students
- Class of 2013 - 57 students

Credit Hours: 3

Course Director: Suporn Sukpraprut, Ph.D.

Responsibilities:

- Teaching Topics: Biostatistics, Designing a Scientific Research Plan, Literature Review, Power analysis, Evaluating and Summarizing Evidence from Medical Literature
- Overview the students’ research projects
- Assisting the students in their IRB applications submission
- Assisting the students in writing abstract and creating research posters
- Submit their research projects to VCOM research day and the AOA meeting
Research Course

Instructors:
David M. Moore, DVM, MS, Diplomate, ACLAM
- Assistant Vice Provost for Research Compliance, Virginia Tech
  Adjunct Associate Professor
  Department of Biomedical Sciences & Pathobiology
- Teaching topic: Fundamental techniques of use of lab animals for IACUC certification

James E. Mahaney, Ph.D.
Associate Dean of Biomedical Affairs and Research
Associate Professor / Discipline Chair for Biochemistry
Teaching topic: Fundamentals of designing a biomedical research project
Research Course

Per Gunnar Brolinson, D.O. FAOASM, FAAFP

- Associate Dean for Clinical Research
- Associate Professor / Discipline Chair of Sports Medicine
- **Teaching topic:** Fundamentals of designing a clinical research project and research in sports medicine

Susan L. Meacham, Ph.D., R.D.

- Professor of Preventive Medicine and Public Health
- Administrative Director of Preventive Medicine Research Center
- **Teaching topic:** Fundamentals of designing a public health project
Research Course

Grading and Assignments:

• Successful IACUC certification
• Successful IRB certification
• Assignments
• Exam 1
• Exam 2
• Poster Presentation on VCOM Research Day
• Final Presentation
• Final Report
Certifications:
• Collaborative Institutional Training Initiative (CITI)
• NIH Certification of Protecting Human Research Participants

Assignments:
• Students were responsible to read and evaluate research articles in biomedical, clinical and public health research
• Students were responsible to read and evaluate the projects from previous year's students
• Students were responsible to utilize knowledge from the biostatistics lectures to perform statistical analyses and report the results and findings
Final project:

- Guidelines were provided to help students to design their studies and provide structure for their studies
- An evaluation form was provided to the faculty to evaluate student presentations, final projects
- Students evaluated each other's projects and presentations as a part of their learning experience
Research Course

Poster Presentation on VCOM Research Day:

Speakers, posters, platform sessions for medical, graduate and post bacalaureate students, medical residents, faculty and staff: open for all

Poster session features biomedical, clinical, public health, education and missions research

Poster session features voluntary competition in specific categories - post-baccalaureate posters are in main groups: Post-baccalaureate students compete - Great experience for interaction one-on-one with critical reviewer.

Overall: Post-baccalaureate student groups present posters, receive feedback from judges and other participants, interact with a wide variety of students, see other posters
Final Presentation:

All student groups present research project as a 20 min oral presentation with Powerpoint slides. Each group member participates.

- provides experience with oral presentation under critical review

All students encouraged to ask questions...most do.

- provides experience answering questions and defending work and experience asking questions in a public format.

Faculty volunteers attend presentations, ask questions, provide feedback, provide evaluation information for grading.

- provides additional experience under critical review
2011-2012 Academic year:

- Four studies utilized public available data
  - The Vaccine Adverse Event Reporting System (VAERS) from the CDC
  - Center for Child and Adolescent Health
- One group conducted literature review
- Two groups conducted surveys
- One group conducted literature review
Research Projects

**2012-2013 Academic year:**

- Three groups utilized publicly available data
  - The Surveillance Epidemiology and End Results Program (SEER) of the National Cancer Institute (NCI)
  - Centers for Disease Control and Prevention, National Center for Health Statistics, National Ambulatory Medical Care Survey and National Hospital Ambulatory Medical Care Survey
  - Appalachian Regional Commission (ARC)
- Five groups conducted their studies during Medical Mission Trip in Honduras
- Two groups conducted survey research
- One group conducted their study based on medical records
- One group conducted a literature review
Publications

2011-2012 Academic year

Comparisons of Adverse Events Reported After Receiving Seasonal and H1N1 Influenza Vaccines Via Injection and Nasal Spray
Suporn Sukpraprut, PhD, Charles Whitener, BS, Katherine Holland, Meghan Hutchins, Nickia King, Jenna Ryan, Charles Teixeira
Publication: J Am Osteopath Assoc August 1, 2012 vol. 112 no. 8 p. 548
Abstract Publication: 2012 Annual Via Research Recognition Day, Blacksburg, VA
2012 Annual Osteopathic Medical Conference and Exposition (OMED), San Diego, CA

Cholera Outbreaks on Hispaniola: Effects of Distance and Disease from the Epicenter
Suporn Sukpraprut, PhD, Ryan Foster, Diana Metzger, MPH, Bethany Brumfield
Abstract Publication: J Am Osteopath Assoc August 1, 2012 vol. 112 no. 8 p. 549
Presentation: 2012 Annual Via Research Recognition Day, Blacksburg, VA
2012 Annual Osteopathic Medical Conference and Exposition (OMED), San Diego, CA

Prevalence of Childhood Obesity in Rural vs. Urban Areas
Suporn Sukpraprut, PhD, Jessica Jackson, Rebecca Burnham, Jefferson Jones, Sharmina Miller-Randolph
Abstract Publication: J Am Osteopath Assoc August 1, 2012 vol. 112 no. 8 p. 550
Presentation: 2012 Annual Via Research Recognition Day, Blacksburg, VA
2012 Annual Osteopathic Medical Conference and Exposition (OMED), San Diego, CA
Recognition: The Editor in chief of the J Am Osteopath Assoc invited the study to be published in the journal
Publications

Folic Acid Is an Important Factor in Preventing Neural Tube Defects
Suporn Sukpraaprut, PhD, Monica Ahmed, Victoria Delbono, Yousuf Khan, Saad Maqsood, Anna Orlando, Bailey Young
Abstract Publication: J Am Osteopath Assoc August 1, 2012 vol. 112 no. 8 p. 560
Presentation: 2012 Annual Via Research Recognition Day, Blacksburg, VA
2012 Annual Osteopathic Medical Conference and Exposition (OMED), San Diego, CA

Consumer Attitudes Toward Purchasing Organic Food
Suporn Sukpraaprut, PhD, Thomas Taber, MPH, Robert Arritt, Joseph St. Pierre, Steven Carter, Tracy Fabian, Aryn Rooney
Abstract Publication: J Am Osteopath Assoc August 1, 2012 vol. 112 no. 8 p. 561
Presentation: 2012 Annual Via Research Recognition Day, Blacksburg, VA
2012 Annual Osteopathic Medical Conference and Exposition (OMED), San Diego, CA

Mechanism For Reversible Male Contraceptives
Tiffany Garrett, Sharmilee Vuyyuru, Kate Rose, Robin Davis, Caitlin Schreider, Suporn Sukpraaprut, PhD, James Mahaney, PhD
Abstract Publication: 2012 Annual Via Research Recognition Day
Award: First prize award winner for the post-baccalaureate research on 2012 Annual Via Research Recognition Day, Blacksburg, VA

The Effects of Platelet-Rich Plasma on Postoperative Anterior Cruciate Ligament Biological/Healing markers
Ramy Elattal, Andrew Hanna, Chase King, Bryan Scott, Logan Worrell, Suporn Sukpraaprut, PhD
Presentation: 2012 Annual Via Research Recognition Day, Blacksburg, VA
Current Studies

2012-2013 Academic year

Effect of Medical Education on Personal Hygiene within Two Distinct Adolescent Communities in Honduras

Students: Evin Guilliams, Felippe Sartorato, Charisse Carter, Megan Blackman, John Leonard
Advisors: Dean Sutphin, PhD, Brian Hill, PhD, Susan Meacham, PhD and Suporn Sukpraprut, PhD
Publication: Abstract was submitted for the 2013 Annual Via Research Recognition Day, Blacksburg, VA
(IRB application has been approved)

Oral Health Knowledge and Status among Children in Honduras

Students: Ahmad Abdul Ali, Ryan Brush, Lily Dastmalchi, Frank Freund
Advisors: Dean Sutphin, PhD, Brian Hill, PhD, Susan Meacham, PhD and Suporn Sukpraprut, PhD
Publication: Abstract was submitted for the 2013 Annual Via Research Recognition Day, Blacksburg, VA
(IRB application has been approved)

Nutrition Education in Honduras

Students: Joshua Hutton, David Pry, James Salisbury, Mobeen Reza, William Zackowski
Advisors: Dean Sutphin, PhD, Brian Hill, PhD, Susan Meacham, PhD and Suporn Sukpraprut, PhD
Publication: Abstract was submitted for the 2013 Annual Via Research Recognition Day, Blacksburg, VA
(IRB application has been approved)

Teaching Substance Abuse Prevention to Children in Honduras

Students: Corey Mottesheard, Max Davee, R. Stewart Hargrove
Advisors: Dean Sutphin, PhD, Brian Hill, PhD, Susan Meacham, PhD and Suporn Sukpraprut, PhD
Publication: Abstract was submitted for the 2013 Annual Via Research Recognition Day, Blacksburg, VA
(IRB application has been approved)
Current Studies

**Violence Prevention Education among Youth Groups In Honduras**

**Students:** Elizabeth Henderson, Tamima Hossain, Anabel Rodriguez, Nikit Siddhartha  
**Advisors:** Dean Sutphin, PhD, Brian Hill, PhD, Susan Meacham, PhD and Suporn Sukpraprut, PhD  
**Publication:** Abstract was submitted for the 2013 Annual Via Research Recognition Day, Blacksburg, VA (IRB application has been approved)

**An Examination of Wound Healing Rates & the Costs Associated with the Amount of Treatments Needed**

**Students:** Kishore Sathiraju, Chris Diaz, Gianni Ricci, Peter Johnson, John Stewart  
**Advisors:** Gowri D. Sathiraju, MD, Suporn Sukpraprut, PhD  
(IRB application has been approved)

**Health Indicators among Public Safety Workers**

**Students:** Sujata Bhattarai, Steven Griffin, Kamran Iftikhar, Courtney Kantzler-Lido, Mary Mathew, Joseph Ryan Richardson  
**Advisors:** Russell Hendershot, DO, Suporn Sukpraprut, PhD  
**Publication:** Abstract was submitted for the 2013 Annual Via Research Recognition Day, Blacksburg, VA  
(IRB application is submitted)

**Effect of Study Habits on Blood Pressure among Post-Baccalaureate Students**

**Students:** Zachary Bugos, John Goforth, Moe Sulley, Dana Marie Weekes  
**Advisors:** James Mahaney, PhD, Suporn Sukpraprut, PhD  
(IRB application is in preparation)
Current Studies

**UTILIZING PUBLIC AVAILABLE DATA**

The Effects of Geographic Location on Cancer Mortality in Virginia

**Students:** Brooke Bailey, Kristy Atkinson, Danielle Chavis, Katie Kennedy, Stephanie Kwakye, Brittany Thompson  
**Advisor:** Suporn Sukpraprut, PhD  
**Source of data:** Cancer Registration on Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute  
**Publication:** Abstract was submitted for the 2013 Annual Via Research Recognition Day, Blacksburg, VA

Inappropriate Prescription of Antibiotics to Patients at Ambulatory Medical Care Centers in the United States

**Students:** Laura Hsu, Matthew Globerson, Derek Poulin, Tameem Sbaiti, Lauren Whaley  
**Advisor:** Suporn Sukpraprut, PhD  
**Source of data:** Centers for Disease Control and Prevention, National Center for Health Statistics, National Ambulatory Medical Care Survey and National Hospital Ambulatory Medical Care Survey  
**Publication:** Abstract was submitted for the 2013 Annual Via Research Recognition Day, Blacksburg, VA

Analysis of Drug Abuse and Mental Health in the Appalachian Region

**Students:** Joolan Saroor, Sara Bodin, Arezo Abbasi, Victoria DeVilbiss  
**Advisor:** Suporn Sukpraprut, PhD  
**Source of data:** Appalachian Regional Commission (ARC)  
**Publication:** Abstract was submitted for the 2013 Annual Via Research Recognition Day, Blacksburg, VA
LITERATURE REVIEW
A Literary Review on Brown Adipose Tissue Activation and Its Therapeutic Effects on Obesity and Chronic Obesity-Associated Diseases

Students: Livepreet Singh, Chad Siewers, Dezarae Leto, Zeshma Durrani, Kayla Romeo

Advisors: James Mahaney, PhD, Suporn Sukpraprut, PhD

Publication: Abstract was submitted for the 2013 Annual Via Research Recognition Day, Blacksburg, VA
Knowledge Assessment

Knowledge Assessment:

1. Understand published scientific data
2. Understand the study design and the methodology section of scientific research studies
3. Understand and interpret the results from statistical analysis
4. Understand the purpose of the IRB application
5. Gain experience in preparing a scientific poster
6. Gain experience in writing an abstract and a manuscript
7. Gain experience creating and starting a research project
8. Gain experience in evidence based medicine

Thirty eight students answered the knowledge assessment survey.
Knowledge Assessment

Knowledge gained from the research course:

<table>
<thead>
<tr>
<th>Knowledge Factors</th>
<th>Mean (%)</th>
<th>SD</th>
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</thead>
<tbody>
<tr>
<td>Understand published scientific articles</td>
<td>65.8</td>
<td>± 25.3</td>
</tr>
<tr>
<td>Understand the study design</td>
<td>65.9</td>
<td>± 29.5</td>
</tr>
<tr>
<td>Understand statistical analysis results</td>
<td>73.0</td>
<td>± 24.3</td>
</tr>
<tr>
<td>Understand IRB application</td>
<td>78.0</td>
<td>± 35.1</td>
</tr>
<tr>
<td>Competent in preparing a scientific poster</td>
<td>64.1</td>
<td>± 38.8</td>
</tr>
<tr>
<td>Competent in writing abstract and a manuscript</td>
<td>52.3</td>
<td>± 36.3</td>
</tr>
<tr>
<td>Competent in starting a research project</td>
<td>61.7</td>
<td>± 37.2</td>
</tr>
<tr>
<td>Competent in evidence based medicine</td>
<td>58.8</td>
<td>± 34.8</td>
</tr>
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Thank you