Improving People's Lives Through Innovations in Personalized Health Care

Annual Medical Student Summer Research Kickoff

Ginny L. Bumgardner MD, PhD
Professor of Surgery
Associate Dean for Research Education
Welcome & Congratulations!
Objectives

- Provide goals, expectations and context for the summer research experience
- Emphasize the importance of lab safety
- Increase your awareness of future research opportunities for medical students
- Facilitate a successful research experience and prepare you for success in seeking future physician scientist career development awards
Research Experience Expectations

- Background, Significance and Clinical Relevance of the Problem
- Hypothesis that is being tested
- Research design & alternative strategies
- How the results will be analyzed
- The future direction of this research

- Become an active participant in the lab’s research team!
How does research experience benefit physician training?

✓ Understanding of how science has contributed to what is currently known about disease prevention, diagnosis, prognosis or therapy.

✓ Awareness of current scientific approaches, animal models of disease etc and how they can be applied to make new discoveries

✓ Develop critical thinking skills which can be applied to the research project and to future clinical problems

✓ Establish a foundation to increase your competitiveness for future Career Development Opportunities
Potential Timing of Research Experiences

Med VI  **Advanced Competency in Research**

- Leave of Absence for year long research experience (LOA)

Med III

- ACAE: Advanced Competency Alternative Experience
- Leave of Absence for year long research experience or
- Year Long part time research project (LOA)

Med II

Summer Research Project 8-10 weeks

Med I
How Your Research Advisor Can Help

✓ Clarify learning objectives, your role, meeting frequency, timeline for completion, realistic outcomes
✓ Provide resources
✓ Identify important research seminars you can attend
✓ Guide your awareness of other research projects related to your project
✓ Get to know you as a person, research team member, research potential and interests
✓ Identify future extramural opportunities
✓ Expectations for co-authorship
✓ Identify potential medical students who are promising candidates for a more extended research experience
Ask a lot of questions

- You should be proactive to ensure lab safety for yourself and others—ask your PI
  - Even if you do not work on a particular protocol, understanding the risks within your environment is critical information

- As a researcher you should be aware of protocols that are active within your workspace
  - Ask personnel within the lab
  - Ask collaborators
  - College of Medicine MDSR Program Office
  - College of Medicine Office of Research
  - University Resources
2015 MDSR Award Packets

- Award letter
- MDSRS Requirements
- MDSRS Fast Facts
- Research Compliance and Safety Information
Scholarship Expectations & Requirements

- Orientation

- IRB/ILACUC Protocols
  - Due June 5th
  - Email Bianca.McArrell@osumc.edu or Research.Education@osumc.edu

- Scholarship Checkpoint Survey – due July 3rd

- Final Research Report
  - Due August 28th, 2015
  - At http://medicine.osu.edu/go/mdsr
  - Science and mentor should determine the content of your report
  - No statistical analysis or editing can be done by MDSR Office
Scholarship Requirements (cont’d)

- Research Day Poster Presentation
  - Watch for calls for abstract (February)
  - Student is responsible to submit abstract
  - Student must present at Trainee Research Day in April 2016
  - Must acknowledge MDSR and scholarship in ALL posters, presentations and publications
  - Student is responsible for poster printing cost

- Evaluation
  - All evaluations are anonymous
  - Student & Mentor
Acknowledgements

Acknowledging medical student contributions & the OSU College of Medicine in publications:

Title: Cardiovascular Risks and Drug Interactions

Authors: First Author*, Your Name **Medical Student†**, Third Author*, and PI (research mentor)*

Footnote:  * The Ohio State University Department of Internal Medicine, and †The OSU College of Medicine, the OSU Heart and Lung Research Institute, The Ohio State University Wexner Medical Center, Columbus, OH

How to reference COM financial (scholarship) support:

Support: This work was supported in part by the OSU College of Medicine (Barnes, Bennett or Roessler....) research scholarship (medical student initials), NIH grant (collaborator initials), NIH grant xxxx (PI initials) etc.
Relation of body mass index to frequency of recurrent preterm birth in women treated with 17-alpha hydroxyprogesterone caproate

Aila L. Co, BS, Hetty C. Walker, RNC-OB, CCRC, Erinn M. Hade, PhD, Jay D. Iams, MD

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b Center for Biostatistics, The Ohio State University, Columbus, OH
c College of Medicine, The Ohio State University, Columbus, OH

From the Department of Obstetrics and Gynecology (Ms Walker and Dr Iams) and the Center for Biostatistics (Dr Hade), College of Medicine (Ms Co), The Ohio State University, Columbus, OH.

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J.D.I. is an Associate Editor of the journal. The other authors report no conflict of interest.

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RESEARCH

OBSTETRICS

Relation of body mass index to frequency of recurrent preterm birth in women treated with 17-alpha hydroxyprogesterone caproate

Aila L. Co, Hetty C. Walker, RNC-OB, CCRC, Erinn M. Hade, PhD, Jay D. Iams, MD

OBJECTIVE: The standard weekly dose of 17-alpha hydroxyprogesterone caproate (17-OHPC; 250 mg) in the reduction of the rate of recurrent preterm birth was adopted without regard to patient characteristics. We examined the relationship between maternal body mass index (BMI) and recurrent preterm birth among women treated with 17-OHPC for preterm birth prevention. The study hypothesis was that risk of recurrent preterm birth of 32, 33, and 34 weeks gestation would be increased among women with BMI ≥ 35 kg/m² or greater.

STUDY DESIGN: A retrospective cohort study was conducted from a de-identified database of women treated with 17-OHPC for preterm labor prevention. Analysis was performed on 1023 singleton pregnancies delivered between 2003 and 2012. The BMI was calculated as weight in kilograms divided by height in meters squared. Repeat preterm birth was defined as at least two preterm births of <37 weeks gestation. The association between BMI and recurrent preterm birth was analyzed using a logistic regression model adjusted for maternal age and race.

RESULTS: Of all women who met inclusion criteria (n = 1023), those with BMI ≥ 35 kg/m² had an increased risk (adjusted odds ratio 1.48, 95% CI 1.00 to 2.19) of recurrent preterm birth of <37 weeks gestation compared with those with BMI < 30 kg/m². Women with BMI ≥ 35 kg/m² were 2.5 times more likely to deliver a preterm birth of <37 weeks gestation than women with BMI < 25 kg/m². The adjusted absolute risk of recurrent preterm birth among women with BMI ≥ 35 kg/m² was 30.5%, compared with 21.0% among women with BMI < 30 kg/m².

CONCLUSION: Women with BMI ≥ 35 kg/m² may have a higher risk of recurrent preterm birth than women with BMI < 25 kg/m². Additional research is needed to determine whether BMI ≥ 35 kg/m² should affect the decision to provide 17-OHPC treatment in women at risk for preterm birth.

Key words: body mass index, preterm birth, programming
Epidemiology of Overuse Injuries among High-School Athletes in the United States
Allison N. Schroeder, BS1, R. Dawn Comstock, PhD2, Christy L. Collins, MA3, Joshua Everhart, MD4, David Flanigan, MD4, Thomas M. Best, MD, PhD5

1 Ohio State University College of Medicine, Columbus, OH, 2 Department of Epidemiology, Colorado School of Public Health and Emergency Medicine, Pediatrics, University of Colorado School of Medicine, Aurora, CO, 3 Center for Injury Research and Policy, Nationwide Children’s Hospital, Columbus, OH, 4 Department of Orthopedics, The Ohio State University, Columbus, OH, 5 Department of Family Medicine, The Ohio State University, Columbus, OH

“Funded by the Centers for Disease Control and Prevention (R49/CE000674-01 and R49/CE001172-01), National Federation of State High School Associations, National Operating Committee on Standards for Athletic Equipment, DonJoy Orthotics, and EyeBlack. A.S. has received funding from the OSU College of Medicine (Roessler) Research Scholarship. The content of this report is solely the responsibility of the authors and does not necessarily represent the official views of the Centers for Disease Control and Prevention. The authors declare no conflicts of interest.”

Out-of-Hospital Medication Errors among Young Children in the United States, 2002–2012. Maxwell D. Smith; Henry A. Spiller, MS, D.ABAT; Marcel J. Casavant, MD; Thiphalak Chounthirath, MS; Todd J. Brophy, BS; Huiyun Xiang, MD, MPH, PhD


Rare-earth magnet ingestion-related injuries among children, 2000-2012.  


The Effect of Smoking on Rotator Cuff and Glenoid Labrum Surgery: A Systematic Review. Santiago-Torres J1, Flanigan DC1, Butler RB2, Bishop JY3.

Maternal embryonic leucine zipper kinase: key kinase for stem cell phenotype in glioma and other cancers.


Early treatment with lisinopril and spironolactone preserves cardiac and skeletal muscle in Duchenne muscular dystrophy mice.


MELK‹A Conserved Kinase: Functions, Signaling, Cancer, and Controversy.


Distribution of Scholarship Funds

- Summer research awards will be disbursed to you for the Summer Quarter in **2 allotments**.
  - 1st allotment: week of June 10th
  - 2nd allotment: week of July 8th
    - (Scholarship Checkpoint must be complete)

**Consult with your tax advisor to determine how this award should be reported on your taxes**
Scholarship Checkpoints

- **Electronic survey:**
  - Will be sent **June 26th** must be completed by **July 3rd**
    - Mentor
    - Mentee

- **Survey Questions:**

<table>
<thead>
<tr>
<th>Question</th>
<th>(YES or NO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have all necessary equipment/materials to work on my project?</td>
<td>(YES or NO)</td>
</tr>
<tr>
<td>I have met with my mentor or lab/project supervisor?</td>
<td>(YES or NO)</td>
</tr>
<tr>
<td>Have you encountered any unexpected problems?</td>
<td>(YES or NO)</td>
</tr>
<tr>
<td>My project has started</td>
<td>(YES or NO)</td>
</tr>
<tr>
<td>My project is currently on target</td>
<td>(YES or NO)</td>
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<tr>
<td>My project will end before classes start this fall</td>
<td>(YES or NO)</td>
</tr>
<tr>
<td>My project will continue past the summer per agreement between me and my</td>
<td>(YES or NO)</td>
</tr>
<tr>
<td>mentor</td>
<td></td>
</tr>
<tr>
<td>Reminder: My final report will be submitted electronically to the Medical</td>
<td>My final report will be submitted</td>
</tr>
<tr>
<td>Student Research Office by 5 pm on <strong>August 28, 2014</strong></td>
<td>electronically to the Medical</td>
</tr>
<tr>
<td></td>
<td>Student Research Office by 5 pm</td>
</tr>
<tr>
<td></td>
<td>on <strong>August 28, 2014</strong></td>
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</tbody>
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Final Report  
(3-4 pages)

• Due **August 28, 2015** (for short-term summer projects)

• Due July 1st, 2016 (1 year projects)

• **Abstract**: A brief description of background, methods, results & conclusions (≤250 words)

• **Introduction**: Brief background and significance of the research project. State the hypothesis tested. Important references should be cited.

• **Methods**: Brief description of the experimental methods including statistical methods

• **Results**: Report experimental data including results in tables and figures with appropriate legends and statistics.

• **Discussion and Conclusions**: Fully discuss the results and their implications. Compare and contrast your findings with the literature. Suggest the next series of studies.

• **References**: Full citations are required including all authors, title, journal, volume, and year.
Final Evaluation - Mentee

1. Fulfillment of research experience **expectations**
   Please describe the expectations of your research experience. How did your mentor meet them?

2. Research **mentoring** experience
   Please describe your mentor’s best practices, areas for possible improvement.

3. Exposure to diverse research personnel
   Who else did you work under or with during your research experience? How did this exposure enhance your experience?

4. Research education lab **environment**
   How has this research experienced contributed to your medical education training?

5. Research **productivity**
   Please comment on your productivity or opportunities to be productive? Do you plan to continue?

6. Opportunity to **analyze and present** research results
   Please comment on what opportunities you were given to actively participate, present, and analyze results.

7. Stimulation of **critical thinking**
   Please comment if you developed better critical thinking skills you will use during your medical education.

Please comment (use next page if necessary) on your experience in the lab, with your mentor, and subject area:

* On A Scale of 1-5
Final Evaluation - Mentor

1. Fulfillment of research experience expectations
2. Research advisee work ethic
   Please describe your advisee's best practices, areas for possible improvement.
3. Responsiveness of research advisee to advisor/supervisor direction
   Please comment (or have lab supervisor comment) on advisee's best practices or areas for improvement.
4. Research advisee participation and contribution to laboratory team effort.
5. Please comment on the advantages/challenges of advising a medical student in your lab.
6. Advisee research experimental skills and productivity
   Please comment how your advisee met, exceeded, or fell short of your expectations.
7. Advisee skills in analyzing data.
   Please comment how your advisee met, exceeded, or fell short of your expectations.
8. Advisee skills in presenting data verbally.
   Please comment how your advisee met, exceeded, or fell short of your expectations.
9. Advisee skills in presenting data in written form.
   Please comment how your advisee met, exceeded, or fell short of your expectations.
10. Advisee mastery of critical thinking skills.
   Please comment how your advisee met, exceeded, or fell short of your expectations.
11. Advisee passion for research.
   Please comment how your advisee met, exceeded, or fell short of your expectations.

* On A Scale of 1-5
After the Research Project

- Stay in contact with mentor (future collaborations, letters of reference)
- Consider continuing to be involved with the project
- Recommend your mentor or project to future medical students
- Work with your mentor to prepare a Research Day poster & publications
- Share kudos and news with MDSR office*
- Consider membership to Landacre Research Honor Society
Medical Student Research Productivity News

- Productivity Report
  
  • Report Requests will be sent out quarterly
  
  • Please complete with subsequent publications, ongoing support, new scholarship/fellowship support (e.g., HHMI, Pelotonia), or presentations.
  
  • Write a story for the MDSR newsletter
Where to go for more info:

- Office of Responsible Research Practices
  - orrp.osu.edu
  - IRB
  - IACUC
  - IBC

- Environmental Health and Safety
  - ehs.ohio-state.edu

- Office of Research Compliance
  - orc.osu.edu
The mission of the Office of Research Compliance (ORC) is to support and promote ethical research practices at The Ohio State University. ORC serves the OSU research community by coordinating institution-wide research compliance policy and procedure development, and by partnering with researchers, so that the University is compliant with federal, state, and local laws and regulations as well as University policies.

http://orc.osu.edu
Office of Responsible Research Practices

- Includes:
  - IRB
  - IACUC
  - IBC

http://orrp.osu.edu
The Office of Environmental Health & Safety assists the university community in providing and maintaining a safe, healthful work environment for students, faculty, staff, contractors, and visitors. The EHS mission also encompasses responsibilities of protecting the local community and environment from potential hazards generated by university activities.

http://ehs.osu.edu/
Successful Research Experiences

- Ginny Bumgardner, MD, PhD
  - Associate Dean, Research Education

- Balveen Kaur, Ph.D.
  - Associate Director-Med Ctr, Comprehensive Cancer Center

- Jay Iams MD
  - Professor Emeritus of Obstetrics and Gynecology

- Larry Schlesinger, MD,
  - Chair, Department of Microbial Infection & Immunity
  - Director, Medical Scientist Training Program
Student Panel

- Aila Co, M3
- Jan Singaravelu, M3
- Maarten Galantowicz, M4
- Pooja Sanghavi, M4
- Allison Schroeder, M4
- Andrew Stiff, MSTP

- Alex Lionberg, M4
- Nathan Mahler, M4
- Shakthi Bhaskar, M4
Student Panel

- Tips for a successful research experience
- What did you accomplish during Med I summer research?
- How did you go about pursuing research after Med I summer?
- Did you apply for or receive an extramural research grant?
- Do you have any experience with application for an HHMI, Sarnoff, NIH or other 1 year research fellowship?
Breakout Sessions

1) How to Navigate Bumps in the Road

2) What is OSU COM Trainee Research Day?

3) Maximizing the Mentor/Mentee Relationship

4) Research Resources

5) 1 year Research LOA Funding Opportunities
Breakout Session Report Out

1) How to Navigate Bumps in the Road

2) What is OSU COM Trainee Research Day?

3) Maximizing the Mentor/Mentee Relationship

4) Research Resources

5) 1 year Research LOA Funding Opportunities
Thank you!

What questions do you have?
Office of Medical Student Research Education

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