

Medical Student Research Guide

Presented by : The Office of Medical Student Research

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Goals and Objectives

The primary mission of LSU-HS is to Teach, Heal and Discover, to advance the well-being of the State, region, and beyond. Research is essential to discovery. AS such, medical student education and participation in research is a critical part of our mission.

The Office of Medical Student Research strives provide medical students with the resources and faculty mentors needed to encourage, facilitate, and enhance medical students' time to select, begin, and fulfill medical research of the highest caliber.

There are numerous opportunities for medical students to be involved in research on our campus. This includes curricular elements in the preclinical and clinical years, the medical student research program, research electives, a research track of distinction, and our MD/PhD program. Additionally, students at any stage of their training may volunteer to participate in research with faculty mentors from various departments.

Why Research?

Now that step 1 scores are on a pass/fail reporting system, it is more important than ever for medical students to have additional accomplishments on their CVs to discuss during the residency application process. Participation in medical student research allows residency applicants to present themselves as diversified and multitasking individuals. These characteristics are particularly beneficial when applying for competitive residency programs.

Even if you are not planning to pursue research in your future medical career, conducting research during medical school provides students with essential skills needed to further their education and medical careers, such as: time management, academic writing, knowledge of the scientific method, communication with peers and faculty, collaboration with various departments, and how to analyze scientific journals and learn about advancements in your field. Learning to evaluate current literature will also allow you to apply evidence-based medicine to patients you see in clinic.

Contact Information

The office of Medical Student Research is eager to assist students with their research interests. Our Director, Dr. Peter Seidenberg and Project Coordinator, Crystal Morton can be reached through phone or email at the email and telephone numbers provided here.

<p>Peter H. Seidenberg MS, MA, FAAFP, FACSM, RMSK Interim Director of Medical Student Research Professor and Chair, Dept. of Family Medicine LSU Health School of Medicine Phone: 318-675-5640 Email: peter.seidenberg@lsuhs.edu</p>	<p>Crystal R. Morton, M. Ed. Project Coordinator Medical Student Research LSU Health School of Medicine Office 318-675-7576 Email: crystal.morton@lsuhs.edu</p>
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Medical Student Research Website

[HTTPS://WWW.LSUHS.EDU/OUR-SCHOOLS/SCHOOL-OF-MEDICINE/MEDICAL-STUDENT-RESEARCH](https://www.lsuhs.edu/our-schools/school-of-medicine/medical-student-research)

Available Research Opportunities

The Office of Medical Student Research matches research faculty with medical students who are interested in participating in research projects in both Basic Science and Clinical areas of interest. The projects listed in the Research Project Database were provided by faculty members for this purpose.

Click the link for a database that contains a list of available research opportunities, organized by department. *(This list is only accessible by LSUHS Students, Faculty and Staff)*

[Available Research Opportunities](#)

- > Students
- > Faculty
- > How to Locate Mentors / Projects for Research
- > Are you a Current Student or Faculty Member who is involved in Research?

How to Get Involved in Research

Selecting a Project

Areas of Interest-

Consider what areas of medicine you are most interested in studying. Many students will become immersed in one field of study and later shift towards a different field during their medical school careers. Considering this, think of research as more of a representation of your ability to multitask and work within a group setting.

Types of Research-

When selecting a project, you will also need to consider what type of research project you want to become involved in. The following are a few of the most common examples.

- Case Reports- Summarized data of a patient. Usually, 2-3 pages long.
- Retrospective Study- Analysis of multiple patients with the same diagnosis or procedure. Examples include Case-Control, Case-Series, Cohort Studies
- Prospective Study- Patient Groups are observed over a long period of time. Examples include Randomized Clinical Trials, Cohort Studies.
- Basic Science/Animal Work- Requires training, approvals, large amount of planning but there is more flexibility in scheduling lab time.
- Descriptions of Innovations- Describes new techniques, technologies, drugs. Requires expertise in the prospective field.
- Metanalysis- Statistically analyze data across multiple RCTs, Extensive literature review.
- Quality Improvement Project- Designed to evaluate, observe, and improve the quality of healthcare operations.

For more detailed information regarding study designs, refer to Dr. Seidenberg's Study Designs presentation located on Moodle under the heading, Foundations I.

How to Locate Projects/Mentors

Whether you have selected a project on the database or developed an idea of your own, you will need to identify a research faculty mentor to work with. There are various ways to locate potential mentors and projects listed here.

Networking

- After an interesting lecture or activity, ask the instructor if they have any projects that you could work on? Or tell them about your unique research idea.
- Talk to your peers!!! Get involved with Student activities and organizations.
 - Attend grand rounds
 - Attend conferences
- Various Departments host poster symposiums throughout the year.

Faculty Profiles

- [Link to Faculty Profile Search](#)

Research Project Database

- Join an ongoing research study or collaborative project.
 - [Link to the Research Project Database](#)

Project Coordinator

- Crystal R. Morton, M. Ed.
- Crystal.Morton@lsuhs.edu
 - 318-675-7576

Contacting Researchers/Mentors

Once you have located a project and/or mentor you would like to work with, the next step is to reach out to them and express your interest in working together. You will want to introduce yourself, describe your interests, goals, and request a meeting. Remember to keep it short and sweet. The Office of Medical Student Research has a template available for use in contacting mentors for the first time.

Questions to ask potential mentors:

- What is the goal of your research?
- What type of research are you involved in? (Case studies, RCT, basic science, etc...)
- What is the status of this project?
- Who is involved in this project?
- Am I able to assist with this project?
- What will be my duties?
- Is there regulatory training to complete? (IRB, CITI, EPIC, etc..)
- What is the timeline for this research project?
- Are there any deadlines?

Points to Consider:

- Where do my research interests lie?
- What type of project do I want to do?
- What do I want to obtain from this experience?
- What does the current literature say about my topic of interest?
- How much time and effort do I plan to commit to my research?
- If working with a team of investigators, find out the order of authorship for a publication.

Before Beginning Research...

Before diving in head-first into a research project, you will need to conduct a literature review on your topic of interest to gain more insight into current needs in the field. There may also be training required for your research. You will need to consult with your mentor regarding any access or training needed to complete your project. If your research involves accessing patient records, you will need to complete EPIC training to be granted access. If you are doing research with human subjects, you will need to obtain IRB clearance. Your mentor can provide assistance with the IRB process. And finally, everyone who participates in research on campus must complete Compliance and Ethics training. The Office of Medical Student research can provide you with assistance and resources for any required training.

Conducting Research

There are crucial steps one must take when conducting research.

1. Once you have determined what you will be studying and who you will be working with, you will need to determine the study design; whether it's a retrospective case report/series, clinical research, a literature review, etc.
2. Then you will need to decide on your data source(s). Are you going to conduct surveys, look at previous medical records, look at peer-reviewed literature, etc.?
3. And what are you going to use as your variables? You will need to decide upon independent variables, dependent variables, and controlled variables.
4. When selecting measures, you want to make sure they are relevant, applicable, evidence-based, reliable, reproducible, valid, and feasible.
5. If your project requires data analysis, you can use EPIC to generate reports through EPIC reports and SlicerDicer. SPSS Statistical Software is another resource available for data analysis.

Compiling Research Findings

Once you have completed the research process, the next step is to compile your findings into a manuscript and/or poster. Manuscripts are published in the form of journal articles, which are great for residency applications, and book chapters in medical textbooks. Book chapters are usually done by experts in their field, but students can assist with sections of book chapters and have their names added as authors. Poster presentations are usually done at meetings and conferences on local, regional, and national levels.

Regardless of the chosen format, you will need to ensure that you include the following sections in your paper and/or poster: **Introduction, Method, Results, Discussion, and References**. The library can assist you with resources and PUBMED is an excellent resource for literature reviews. Once your paper is drafted, you will need to have your mentor review your work before submitting it to a journal or conference.

Presentation of Research Findings

Once you have completed compiling your research findings in the form of a manuscript and/or poster, your mentor and/or the Office of Medical Student Research can assist you with locating and applying to conferences and meetings. Most peer-reviewed journals have instructions for their application process. You may be invited to present your research findings at a regional meeting or conference. Whether you are invited to present a poster or podium presentation, you will need to be prepared to discuss your research and answer questions pertaining to your findings.

Selecting Conferences or meetings

- Your research mentor and/or the Medical Student Research Office can assist you with locating and applying to conferences/meetings.

Manuscript submission

- Most peer-reviewed journals have instructions for their application process.

Poster Presentation

- Create a poster of your research findings and display it at conferences or meetings and answer questions while others view your work.

Podium Presentations

- Standing in front of an audience to present your research findings
- Usually at Regional and National conferences

Publicizing Medical Student Research Awards, Presentations, and Publications

Please inform the Office of Medical Student Research of student research awards, presentations, and publications for posting on the Medical Student Research website.

Medical Students and Faculty can share these accomplishments using the following links:

- Faculty: <https://forms.gle/DjDz1XpdE4BkgNeX9>
- Students: <https://forms.gle/LQA2xyw27vtDe23F7>
- Or by contacting Crystal Morton, Project Coordinator at crystal.morton@lsuhs.edu or 318-675-7576.

Submitting a Grant Proposal

If your research qualifies for a research grant, your mentor can assist you with the grant writing process.

- Grant proposals are submitted to the Office for Sponsored Programs for review at least two weeks prior to the submission deadline.
- Submission Deadlines vary depending on scope of project
 - Contact breia.smith@lsuhs.edu, Grant Coordinator for more information.
- Link for the grant writing series on the Inside:
<https://inside.lsuhs.edu/departments/research/grant-writing-series>

Medical Student Research Curriculum

The medical student research curriculum begins with the Foundations course in MS1 and MS2 years. Students will participate in lectures and workshops learning the anatomy of research projects and the scientific method. They will learn how to critically appraise medical literature to determine if the findings impact evidence-based medicine. Additionally, they will understand the importance of the IRB (institutional review board) and ethics in investigations involving human subjects. As part of the Foundations of Clinical Medicine Course IV, students work in groups and perform a basic science research investigation under the supervision and guidance of faculty research mentors. The teams will learn how to apply the scientific method to research. It consists of systematic observation of available information/data, identifying and defining a problem, accumulating relevant data, formulating a tentative hypothesis, conducting experiments to test.

Elective Research Programs

You are always welcome to pursue research on your own accord. However, we also have some elective research programs you may be interested in. I have posted links to their webpages here. The MSRP is a summer program that offers a stipend and provides an opportunity to present your research during the annual MSRP Fair where an award is presented for the top researchers in both Basic Science and Clinical Science areas of Medicine. The RDT is a more involved program in research where students are awarded the Distinction in Research on their Diplomas and Dean's Letters.



Medical Student (Summer)
Research Program

<https://www.lsuhs.edu/our-schools/school-of-medicine/medical-student-research/medical-student-research-program>



Research Distinction Track

<https://www.lsuhs.edu/our-schools/school-of-medicine/medical-student-research/research-distinction-track>

MS4 Research Electives

Research Electives are offered during the MS4 year. Students work with a mentor on a research project. This consists of developing a hypothesis for evaluation during the rotation using clinic, translational, or basic science techniques. Students utilize appropriate research methodology to test their hypothesis. Then, data is independently collected and analyzed to test that hypothesis. These are the specialties available for the Research Elective.

Orthopedic Research Elective	Research in Otolaryngology	Pediatric Study Research
Research in Pharmacology	Research in Biochemical, molecular, or clinical toxicology	Radiology Research Elective
Medicine Research Elective	General Research Elective	Family Medicine/Sports Medicine

MS4- Institute for Healthcare Improvement Modules



MS4 students will also complete the Institute for Healthcare Improvement modules during the health systems science course. The modules introduce participants to healthcare improvement, quality improvement and patient safety.

Frequently Asked Questions

- **As a Medical Student, when can I start conducting research?**
 - You are welcome to begin conducting research anytime you wish. However, it is recommended that entering MS1s give themselves time to acclimate to their new educational environment and study routine before diving into research projects
- **What types of Research are Allowed?**
 - Students are allowed to conduct just about any type of research they wish. Please refer to the “Selecting a project” section of this handbook for a list of common types of research.
- **Is there financial assistance for travel to conferences and meetings?**
 - Contact your research mentor and/or department office for information regarding departmental funding for travel to conferences and meetings.
 - Conferences host awards/scholarships for travel. Go to the event website for more information.
 - Contact the Office of Medical Student Research for assistance:
 - Crystal Morton, M.Ed. Project Coordinator
 - Crystal.Morton@lsuhs.edu
 - 318-675-7576
- **Where can I learn more about research opportunities on campus?**
 - Medical Student Research Website
 - <https://www.lsuhs.edu/our-schools/school-of-medicine/medical-student-research>
 - Research Project Database
 - https://docs.google.com/spreadsheets/d/1TPNGcB0nNv7s4-e8EIXEBpMAYVw_01pp8zugLcgNZ4Q/edit?usp=sharing
 - Contact the Office of Medical Student Research for assistance:
 - Crystal Morton, M.Ed. Project Coordinator
 - Crystal.Morton@lsuhs.edu
 - 318-675-7576
- **How do I identify a potential mentor and/or project?**
 - There are various ways students can find potential research mentors. Please refer to the “How to Locate Mentors/Projects” section of this handbook for a listing of ways you can locate mentors and projects.
- **I have my own research idea that I would like to pursue. Is that allowed?**
 - ABSOLUTELY! If you have a research project idea that you would like to pursue, reach out to faculty mentors in the department pertaining to your research idea and express your interest in working with them, explaining your idea.
 - Feel free to contact the **Office of Medical Student Research** for assistance.
 - Crystal.Morton@lsuhs.edu
 - 318-675-7576

Frequently Asked Questions

- **Can I be involved with more than one research project at a time?**
 - While you are welcome to become involved in as many research projects as you like, it is important to keep academic requirements at the forefront of your thoughts. Don't take on so many projects and activities that your studies start to suffer.
- **Will I be compensated for my research activities?**
 - Currently, the only research program to offer compensation is the Medical Student Summer Research Program.
 - Students participating in this program are offered a stipend in the amount of \$1,000 at the completion of the program.
 - Please see the MSRP webpage for more information
 - <https://www.lsuhs.edu/our-schools/school-of-medicine/medical-student-research/medical-student-research-program>
- **Is there special training that I must fulfill to participate in research?**
 - Training requirements vary depending on what type of research you will be doing. Your mentor can assist you with this process. Please refer to the "Before Beginning Research" section of this handbook for more information.