

Incorporating Students into the Research Process for the Non-Faculty Preceptor

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Disclosure

- No financial disclosures to provide
- Personal opinions (based on 8 years of experience)
 - With motivation...Students are willing (10 currently, 40+ total)
 - With guidance...Students are able (30/59 publications included at least 1 student)
 - With structure...Students and the profession will benefit

Objectives

At the completion of this activity, pharmacists will be able to:

1. Determine ways to identify students to collaborate with on research
2. Describe activities that support the success of student researchers
3. Prepare a timeline for completing research activities with the assistance of student researchers

At the completion of this activity, pharmacy technicians will be able to:

1. Identify different types of research projects
2. Describe common research activities
3. List criteria for authorship

Types of Research

SAFETY AND AC OF PATIENT-ADM SEDATIVES DURI MECHANICAL V

Treatment of Hypertriglyceridemia- Induced Acute Pancreatitis With Insulin, Heparin, and Gemfibrozil: A Case Series

Drayton A. Hammond¹ and Laura Finlay¹

Katherine Lusardi,^{1,2}

By Linda L. Chlan, RN, PhD, Debra J. Skaar, PharmD, Mary F. Tracy, RN, PhD,
CCNS, Sarah M. Hayes, PharmD, Breanna D. Hetland, RN, PhD, Kay Savik, MS

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REVIEW OF THE Impact of Targeted Education on *Clostridium difficile* Infection in Critically Ill Adults

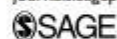
Nonpharmacist Health Care Providers' Knowledge of and Opinions Regarding Medication Costs in Critically Ill Patients

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ORIGINAL RESEARCH ARTICLE

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Types of Research

Research that can involve students is individualized

1. Your desires and interests
2. Your potential capabilities (help is out there!)
3. Departmental/institutional support and initiatives

Identifying Student(s)

Audience Participation

Who is willing and able to participate in research with a pharmacist?

- A. Pharmacy students (and residents)
- B. Medical students (and residents)
- C. DNP students
- D. PA students
- E. Graduate students (e.g., MSc, Ph.D.)
- F. All of the above

Non-Pharmacy Students

Why even consider non-pharmacy students?

- Motivation
 - Often programmatic requirement
 - Competitiveness for (required) residency training or job
- Time
 - Often allotted through the program
 - Typically not working during training

Research Tip: Include a preceptor in that profession/department on the research team as well

Pharmacy Students

Identifying Students

Student interns at your institution

- Aware of their work ethic and professional interests
- Already have access to EHR
- Paperwork to volunteer (if necessary) is not needed
- Many established intern programs include service to the department as an expectation

Identifying Students

Through an adjunct professor role

- Aware of their clinical reasoning, quality of work, and responsibility
- May be interested in your clinical area (e.g., coordinating or teaching in an elective at a COP)
- Easier to establish a structured learning experience (e.g., rotation or elective) if already known entity to COP

Identifying Students

Collaboration with colleagues at a College of Pharmacy

- You probably will need to reach out to the colleague
 - Within your practice area (e.g., critical care)
 - In an “adjacent” practice area (e.g., infectious diseases, internal medicine)
 - Biostatistics/Epidemiology
- Rely on the colleague to identify the student(s)
- May yield additional perks (e.g., adjunct stipend, choice of students for rotation or research elective)

Identifying Students

Through/during traditional rotations

- Strong student could be invited to join research team
- Establish clinical research rotation
- Incorporate time (e.g., half-day once or twice per week) for data collection for longitudinal research
 - Building a database of all patients of a specific population (e.g, sepsis)
 - Pre/post-intervention
 - Prospective, observational
 - MUE that can lead to research

Identifying Students

Through/during longitudinal (block) rotation schedule

- Students spend 4-6 consecutive months at a site
 - One of the rotations (4-6 weeks) can be QI/Clinical Research
 - Longitudinal research component with one/two half-days per week
- In my experience, 2 students partnered on a single-center retrospective cohort study can complete initial data collection in a month (20 rotation days)

Identifying Students

Refer a friend

- Ask those who you identify as wanting to work with if they have a friend who would be interested as well
 - Trust their work ethic and responsibility
 - Would enjoy working with on the project
- Greatly improves likelihood project is completed
 - Easy to ghost me
 - Tougher to ghost a friend

Supporting Successful Research Collaborations

Audience Participation

Who is more likely to finish a project and tell classmates to work with you on research: the student who was...?

- A. Oriented to the research background
- B. Oriented to data collection and had initial collection validated
- C. Able to collect data off-site
- D. Able to present data at a conference
- E. On the author byline
- F. All of the above

Attitudes and Externalities

Attitude

- They are research team members (not data monkeys)
- You are building a research program

Externalities

- Additional collaborations on research and/or patient care
- Could complete training at your site despite other available options

Supporting Student Success

Ensure they understand the **research topic**

- Options
 - Review available literature
 - Prepare an IRB (actual or practice)
- Need to assess
 - Encourages early engagement
 - Determines willingness to participate will be adequate/sustained

Supporting Student Success

Ensure they understand the **data being collected**

- Data elements
 - Discuss each data element in specifics not generalities
 - Prepare data dictionary with definitions and explanations

Supporting Student Success

REALLY ensure they understand the **data being collected**

- Data collection tool
 - Build in explanations
 - Trial before meeting with student
 - Work through 2-3 patients together
- Availability
 - Have an “open door” policy for questions, comments, & concerns
 - Reasonable communication plan (e.g., reply within 24 h)

Set & Hold Reasonable Expectations

- Establish a timeline
- Have adequate personnel for data collection
- Evaluation and opportunities
- Role in preparing for publication

Set & Hold Reasonable Expectations

Establish a timeline

- Must be reasonable given other commitments
- Communicate ability and need to adjust
- Build in buffer
 - **Research tip:** Allow 1.5-2x as long as estimated for data collection

Example Longitudinal Timeline

- IRB submission (by preceptor): March
- Orient 2 students to project: April
- Data collection: 240 patients / 2 students / 10 patients per week
 - 12 weeks → April to August (buffer for other commitments)
- Data analysis: September
- Abstract submission to ASHP Midyear: October 1
- Poster presentations: Early December
- First manuscript draft due: December 31
- Manuscript edits: January
- Manuscript submitted for publication: February

Example Research Rotation Calendar

- Rotation day 1: discuss pre-reading on research topic, orient to EHR, review 2-3 patients together, revise data collection tool
- Rotation days 2-20: data collection
- Rotation week 1 topic: introducing the research topic
- Rotation week 2 topic: study methods
- Rotation week 3 topic: table shells and potential results
- Rotation week 4 topic: brainstorming discussion points

Set & Hold Reasonable Expectations

Have adequate personnel for data collection

- Project complexity and deadlines will be biggest drivers
- E.g. – A critical care project requiring 160 patients with 80 data elements each can be completed by 2 P4 students working 40 h/w (clinical research rotation) in 4 weeks
 - Average 30 min/patient
 - Does not include time for data validation by preceptor(s)

Set & Hold Reasonable Expectations

Evaluation and opportunities

- There may be no grade so other motivators must be used
 - Letter of recommendation – meets or exceeds expectations ONLY
 - Conference presentation – STRONGLY encourage
 - Author byline – STRONGLY encourage allowing opportunity

Audience Participation

Which criteria must be met to be on the author byline?

- A. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work
- B. Drafting the work or revising it critically for important intellectual content
- C. Final approval of the version to be published
- D. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved
- E. All of the above

Set & Hold Reasonable Expectations

Role in preparing for publication

- Need to allow students to meet 4 authorship criteria
- Strategies for criterion 2 – you write the manuscript vs. (select) students get a chance to prepare the first draft
 - If you write, they need to review and edit
 - If they write, you need to provide sufficient guidance so the task is worth their and your time

Set & Hold Reasonable Expectations

Success with students writing a manuscript (first draft)

- Outline each section down to at least the paragraph level **and maybe even sentence level**
- Discuss outline so they understand the reasoning
- Review key studies that will be cited
- Be prepared to **EDIT**

Set & Hold Reasonable Expectations

Benefits to students writing a manuscript (first draft)

- Forces you to outline so think through paper in advance
- Improves editing abilities
- Most people do not like writing a first draft so avoids that
- Grows student's abilities significantly (hands-on learning in a modeling/coaching mix)
- Can better speak to student's abilities in LOR

Presentation Summary

Takeaways

- All types of research can benefit from including students (from multiple professions)
- Students may be identified in a variety of ways
- Support, structure, and incentives can encourage student participation that meets or exceeds (your and their) expectations

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