According to the ACGME, Internal Medicine Residency Program curricula must increase residents’ knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care. Residents must also participate in scholarly activity such as original research, comprehensive case reports, or a review of assigned clinical and research topics. These requirements exist because pursuing excellence in patient care requires a life-long commitment to scholarly learning by internists.

The scholarly activity requirement of the Department of Medicine is designed to comply with RRC guidelines while allowing flexibility for an individual resident to design one or a series of scholarly activities that best support his or her long-term goals. We understand that there are diverse ways to maintain a commitment to life-long learning. The structure of the following requirements is adapted from a successful research program at the University Of Tennessee College Of Medicine.

Completing the scholarly activity requirement is defined as follows:

1) Each resident will be required to select and complete tasks from the following list sufficient to total twenty-one (21) points during the 3 years of the residency by 4/30 of the graduating year (or 60 days before expected residency program completion for residents “off-cycle”).
   a. Research project: 21 points
   b. Case report: up to 7 points
   c. Clinical Pathologic Case Conference Presentation: up to 5 points
   d. Commentaries or Letters to the Editor: 5 points
   e. Journal Club discussion: 3 points
   f. Core Curriculum lecture to residents (30-40 minutes in length): 3 points
   g. Collaborative IRB Training Initiative (CITI) Education: 1 point
   h. Medical Student morning report: 1 point (max 2 points per academic year)

2) Each academic year a resident must complete sufficient tasks to earn 7 points in order to be promoted to the next year.

3) Tasks selected must be in addition to those already required as part of a clinical rotation and which are already a part of residency program requirements.

4) The requirements for each task are as follows:
a. Research project:
   (i) Must be approved by Dept Research Committee
   (ii) Must include submission of abstract/poster to the Department of Medicine Resident Research Day no later than the PGY-3 year, and submission of manuscript for publication by 4/30 of the PGY-3 year (or no later than 60 days prior to anticipated graduation date for “off-cycle” residents.)
   (iii) Annual “point” credit for the research project will be determined by the Dept Research Committee in conjunction with the project mentor and will be significantly influenced by adherence to the expected timeline. (Partial credit can be allotted for various phase of the research project).
   (iv) Points will be accrued per the following:
       1) Preparation of research proposal with faculty mentor and acceptance by Research Committee - 3 points
       2) Submission to IRB and acceptance - 3 points
       3) Data collection - 5 points
       4) Oral presentation or poster - 5 points
       5) Manuscript completion and submission - 5 points

b. Case report (not including Clinical Pathologic Case Conference write-ups):
   (i) Resident must be first author. (Points can be divided up for coauthors based on the amount of effort by Research Committee.)
   (ii) To receive full credit (7 points), case reports:
       1) Must be submitted and accepted as an abstract to a regional or national meeting in addition to being presented as a poster at Dept Resident Research Day for the year in which credit is requested, and
       2) Must be submitted to and accepted by the Dept Research Committee as a manuscript suitable for publication by 4/30 of the year for which credit is requested (or no later than 60 days prior to expected graduation date for “off-cycle” residents).
   (iii) A poster or oral presentation alone will receive 3 points based on acceptance to one meeting.
   (iv) Case reports submitted and accepted as manuscripts, but not as posters/oral presentations, will still receive the full 7 points.
   (v) A case report published as a Medical Image will receive 7 points.
   (vi) Scholarly point requirements cannot be completed solely by poster presentations.

c. Clinical Pathologic Case Conference Presentation – patient presentation and hospital course write-up must be mentored by the Chief Residents and be turned in on time with minimal errors to them.
   (i) Resident will receive 2 points for case presentation and hospital course (this will be divided in half if two residents present.)
   (ii) Resident will receive an additional 1 point for giving discussion at the end of the case. This lecture must include references to current medical literature.
   (iii) All CPC presentations must be turned into a poster for presentation at the Department’s Resident Research Day. Completion of this requirement
will earn 2 points (this will divided in half if poster made with another resident.)

d. Commentaries or Letters to the Editor must be mentored and co-authored by faculty member. Acceptance in a peer-reviewed journal is required for credit.

e. Journal Club discussion must be mentored by faculty member who will also attend the Journal Club session. Credit will only be given if discussant is able to critically appraise literature using evidence-based medicine. Residents should use the JAMA Users' Guide to the Medical Literature Series to help prepare their discussions.

f. Core Curriculum lectures to residents must be mentored by one or more faculty members. Presentation material must be approved by the faculty mentor or Program Director. Length should be 30-40 minutes. (Note: 10 minute MKSAP topic reviews are a program requirement, and do not equal any research points.)

g. All residents must complete the Collaborative IRB Training Initiative (CITI) Education training program online at [http://gsn.newark.rutgers.edu/RCR.html](http://gsn.newark.rutgers.edu/RCR.html) in order to perform research at Rutgers. Turning in a copy of the certificate demonstrating completion of this mandatory human subjects protection training program will earn a resident one (1) point. This may only be earned once during residency.

h. Moderating a one-hour medical student morning report will earn a resident 1 point. A maximum of 2 points can be earned per academic year, though residents may certainly moderate additional medical student morning reports if they so choose.

5) Miscellaneous

a. The resident is responsible for providing the Program with a copy of all abstracts, manuscripts, and conference handouts for which the resident desires credit for the scholarly activity requirement.

b. All situations, disagreements, and questions relating to the scholarly activity requirement and its completion not addressed by this description will be submitted in writing for consideration by the Dept Research Committee which will make the final decision.

c. Insufficient “points” credited under the Scholarly Activity Requirement for a year of training may delay promotion and/or graduation depending on the resident’s year of training.
DEFINITION OF A RESEARCH PROJECT

All Internal Medicine residents are encouraged to complete a research project during their residency. A research project is a scientific endeavor to answer a research question. Research projects may include:

- Case series
- Case control study
- Cohort study
- Randomized, controlled trial
- Survey
- Secondary data analysis such as decision analysis, cost effectiveness analysis, or meta-analysis.

Each resident must work under the guidance of a faculty mentor. Depending on your area of research interest or your research topic, you may be able to identify a mentor on your own, or if needed, you will be assigned one. You are also provided with a step-by-step guide below to simplify the process and a suggested Timeline for research project completion to ensure that you meet your requirement in a timely manner.

A GUIDE TO THE RESEARCH PROCESS

I. SELECTION OF THE RESEARCH TOPIC: The first major challenge in conducting research

- The easiest way is working with a faculty mentor who is active in research and may have defined one or more researchable questions.
- Consulting with leading faculty in your area of interest and asking for advice on researchable topics is another avenue for research ideas.
- Developing research ideas from loose ends discovered during: a) patient care, b) reading within an area, c) reviewing journal article(s), and d) discussions, critique of research articles in journal club, could be an interesting, and a rewarding experience.

II. DEVELOPING THE RESEARCH PROPOSAL

A research proposal helps you to develop your research idea into a valid, scientific research project. A general outline of the elements of a Research Proposal is presented. Although the Research Project Outline provides a description of all the elements of a research project, you are required to complete the writing up of the Methodology section BEFORE you begin project implementation. Writing of the research proposal has a two-fold purpose: 1) it provides you, the researcher, with the blueprint for implementing your project, and 2) it helps in composing the IRB application; IRB approval is necessary before implementing your project. Besides, it is easier to write up the Results and Discussion sections once you have the preliminary sections in place.
III. SECURING IRB APPROVAL

IRB approval has to be secured BEFORE you begin collecting your data. In order to do so, you need to submit copies of your proposal and Patient Consent Form (for prospective clinical trials) to the eIRB. The Research Committee can review your IRB proposal prior to submission to double-check format and value. The Vice-Chair for Research must sign off on all IRB applications before they can be submitted.

IV. PROJECT IMPLEMENTATION

In order to conduct a valid, scientific study, it is important that you rigorously follow the study design outlined in your research proposal and approved by the Research Committee. Also, to ensure timely completion of your project, it is important that you stay within the framework discussed in the Timeline.

Those wishing to request funding from the Department of Medicine must complete the following criteria:

1. Be paired with a faculty research mentor and have IRB approval
2. Complete the below questionnaire and submit to residency/division director for review/comment
3. If proposal is acceptable to residency director, submit to Research Advisory Committee for review
4. Show evidence of a substantial commitment to publish your work in a peer-reviewed journal by writing an introduction to the project and research methods suitable to be used as introduction and methods sections in a published paper.
5. Requestor must present their project (not necessary that it be complete) to the DOM Research Advisory Committee

Resident Name:
Project Title:
Faculty Mentor:
Provide the statement/goals (at least 3) of the problem you plan to address:
Provide a brief description of the proposed research project, hypothesis, and outcomes you plan to achieve:

V. WRITE-UP OF PROJECT RESULTS AND DISCUSSION

This should follow directly from your research proposal. The research project outline provides a ‘how to’ for writing up the results and discussion sections.

VI. RESEARCH PRESENTATION

Once your research project is complete, you have to make a public oral presentation to present your work. A formal Research Presentation provides you with the opportunity to share your research with your colleagues, and the department faculty, and provides you with the confidence required to give presentations at regional and national conferences.
OUTLINE OF A RESEARCH PROJECT

I. TITLE PAGE (Page 1, DO NOT NUMBER)
   - Study Title
   - Names of principal investigator(s) and co-investigator(s)
   - Division
   - Department of Medicine
   - Rutgers New Jersey Medical School, Newark, New Jersey
   - Date: month and year proposal prepared/submitted

II. SUMMARY (Page 2; up to 1/2 - 3/4 page; DO NOT NUMBER)
The summary should be brief and include: 1) a few sentences introducing the topic of current study (could include a couple of references); 2) statement of the problem; 3) a brief description of the methodology to be used including duration of study, subject selection criteria, tests to be performed, and/or data to be collected; 4) significance and implications of the study (why it is important to do the study, and what are the benefits: fill in gap in knowledge; develop further understanding of a clinical situation; modify current approach to treatment; cost-benefit analysis etc., etc.). Summary is usually written AFTER you have finished writing your proposal.

III. INTRODUCTION AND REVIEW OF THE LITERATURE (Page 3; up to 2 – 3 pages; a minimum of 8 references required).
This section consists of an overview of the research question and some indication of the study’s worth and the contribution it is apt to make to the field of study. It should include the rationale for the research project. Use references to establish the link between the proposed study and previous work done on the topic, lay the groundwork for the proposed study, and demonstrate why it is important and timely. The literature review is not just a compilation of facts, but a coherent argument that leads to the description of the proposed study. By the end of the literature review, the reader should be able to conclude that, “Yes, of course, this is the exact study that needs to be done at this time, to move knowledge in this field a little further along.”

IV. PROBLEM STATEMENT & RESEARCH HYPOTHESES (up to 1/2-1 page)
The problem statement describes the problem posed by the proposed study and specifies it in the form of Research Hypotheses. The research hypotheses should flow logically from the discussion presented in the Review of Literature and the Statement of the Problem. The hypotheses should be very specific in presenting what aspects of the research topic you will be studying, and how. The hypotheses should be optimally clear, concise, meaningful, and typically written in the present tense. One recommended statement of the criteria for a good hypothesis is that is: a) be free of ambiguity, b) express the relationship between two variables or concepts, and c) imply an empirical test. AVOID having more than one hypotheses embedded in a single, complex statement. A conceptual model represents a visual depiction of the relationship between all the variables in your study. It is a good place to start when planning your research project, and also helps in developing your hypotheses.

V. METHODOLOGY (up to 2-3 pages)
1. Study Duration
   - Describe the time frame during for which data will be collected (retrospective study; chart reviews), or intervention administered (prospective study; clinical trials).
2. Subject Selection
Of particular importance in this section are:

a) the sampling procedure to be used – random, stratified, convenience
b) the source of the subjects
c) the criteria for selection – clearly state inclusion/exclusion
d) the rationale for determining sample size – use power test to determine sample size for significance; realistic estimates of crossovers, dropouts must be used in calculating sample size

3. Instrumentation or Measures
   This section lists all the variables (intervention as well as outcome variables) you would be examining in your study, and describes what particular measures, or forms, or data collection sheets you will be using to measure the variables.

4. Procedures
   This section provides a detailed description of the exact steps to be taken to conduct your research. This includes the procedure used to contact subjects, obtaining Informed Consent, and collecting the data. For prospective clinical trials, you have to specify the way the intervention will be allocated (randomization, single blind, double blind), baseline examination, administer intervention, post-intervention examination etc. You need to specify the termination policy for your study.

5. Data Analysis
   In this section describe the statistical tests that will be used to address the research hypotheses. Although intimidating, this section forces you to think how you will analyze (or have it analyzed) at the time the proposal is generated rather than after the data are collected. This way, you can avoid wasting time collecting data that are not analyzable because they are not in the collected in the correct format.

6. Study Limitations
   Describe the shortcomings and weakness of your study most likely to impact the internal validity of your study.

VI. RESULTS
   In this section, you present your findings as clearly as possible. The Results section contains JUST THE FACTS: tables, figures, transcript summaries, and your description of what is noteworthy and important about these. Begin with a description of the sample. Simple demographics can be presented in tabular form. Follow with presenting your findings in terms of the research questions/hypotheses tested.

VII. DISCUSSION
   This section typically contains:
   • an overview of significant findings
   • a consideration of the finding in light of previous research
   • a careful examination of findings that fail to support your hypotheses
   • limitations of the study that may affect the generalizability of the results
   • recommendations for further research
   • implications of study for professional practice

VIII. REFERENCES
   You must cite all studies referred to in the proposal, using the AMA citation method.
INCENTIVES OFFERED BY THE DEPARTMENT OF MEDICINE
FOR PRESENTING POSTERS/ABSTRACTS AT NATIONAL MEETINGS

Submitting original research or case reports to regional and national meetings as well as to Resident Research Day is encouraged and supported by the Department. The department staff helps residents in every step of the process including providing assistance with the paperwork required for submitting an abstract, preparing the poster, as well as providing residents with extra days and reimbursement for all posters or oral presentations at state or national meetings.
RESEARCH REQUIREMENT FOR ALL RESIDENTS

Designing, implementing, evaluation, writing up, and submitting a research project to the Research Committee by April 30 of PGY-3 meets the research requirement for all residents. Please follow appropriate deadlines.

PGY1

Time Line for Research Project for PGY1
1. Mentor Assignment Sep 1/PGY1
2. Selection of research project in consultation with Research Committee Jan-Feb/PGY1
3. Submit literature review and research hypothesis to mentor (a minimum of 8 citations required; more would be nice!) Mar 1/PGY1

PGY2

Continuation of research project initiated in PGY1.

Time Line for Research Project for PGY2
1. Submit write-up on research design, methodology, data collection instruments, patient selection criteria to mentor followed by IRB approval process Jul 1/PGY2
2. Follow-up and approval of research methodology by IRB Oct 1/PGY2
3. Begin implementation of project Nov 1/PGY2

PGY3

Continuation of research project initiated in PGY1.

Time Line for Research Project for PGY3
1. Complete data collection Jul 1/PGY3
2. Complete analysis of results Nov 1/PGY3
3. Complete write-up of project including results, discussion, and conclusions; Submit to Research Committee Apr/PGY3

Last updated 6/18/2013 nk
Research Advisory Committee

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CITI Program Entrance Point:
http://www.umdnj.edu/hsweb/Education/instructions.html
Start with “Basic Course.”

IRB Forms Website:
http://www.umdnj.edu/hsweb/Forms/index.html

UMDNJ Resident Website (articles):
www.umdnjim.com