Overview

The AAMC Research on Care Community (ROCC) hosted a meeting May 28, 2015 which convened teams of three (GME leadership, Residency & Research Directors, Residents and others) from member institutions that were interested in enhancing their residency research experience. The meeting aimed to create a customized learning environment, matching learners with experts as a means to gather information and develop strategic steps to enhance the research experience of their residents.

Interested teams applied for participation by providing information about the current state of their residency research experience and their intentions for the meeting. Following presentations and discussions concerning residency research programs which have published results concerning their impact, teams met to develop goals and evaluation criteria for their own programs.

In this document brief descriptions of the presentations are provided. Please review the slide presentations (links provided) for additional information.

Speaker Presentations

Scholarship and Residency Research

David Sklar, MD
[Link to slide presentation](https://www.aamc.org/download/433726/data/sklar.pptx)

The engagement of residents in research is an important goal as these experiences provide skills which support the practice of medicine – understanding the development of scientific knowledge and an academic literature. Residents’ participation in research contributes to the development of critical thinking, the growth of knowledge in the field, identify development, and contributes to the academic enterprise. Participation also contributes to ACGME requirements for scholarship and requirements for the clinical learning environment. Barriers to engagement in research activities include: time, lack of mentors, lack of prior experience, conflicting priorities, and available technical support. Facilitators include mentors that help design projects which can be completed, protected time, training, incentives (seed funding, travel, etc), and technical support. Consider the full spectrum of research including literature reviews, health services & policy, quality improvement, and patient safety. Also utilize teams to complete research goals. For resident research to be successful adequate time, resources, and faculty support are needed.

Participants discussed the benefit of utilizing a broad definition of research so that residents have more options including; lit reviews, case reports, team research projects, cost effectiveness research, quality improvement projects, and health services or health policy research that utilizes population health databases. Individualizing research goals is important to “right size” the research project and match interest with available mentors, resources, and time available.

Preserving Science in Medical Schools: Sustaining Funding, Aligning Investigations, Valuing TeachingCarrie L. Byington, MD
[Link to slide presentation](https://www.aamc.org/download/433660/data/byington.pptx)

Institutions should focus efforts on the development of a mentorship model as a means to address the academic research “leaky pipeline.” The *Matrix Mentoring Model* at the University of Utah describes the five key components necessary to support a Mentorship program:

Self Residents and faculty serve as their own best mentor.

Scientific Institutions with teams of individuals who can help junior researchers. This includes methodology experts and statisticians.

Senior Researchers should be linked to senior faculty who have been grant funded and recognized by promotion and tenure committees for their research. These experienced Faculty have protected time to mentor junior researchers. At Utah, the Mentoring Academy trains mentors to become Senior Mentors.

Peer A cohort of 40 researchers are selected every 2 years. These peers meet regularly to share career development opportunities and offer to read each other’s grants.

Staff The University of Utah formally recognizes grants and contracts staff, as well as a team that supports study design and bioinformatics.

The program has been actively supported by the department Chair. The initial investment in the Pediatrics department was less than 100k, and within 3 years returned 500k in indirect dollars to the department. The program utilizes HR resources and taps into the CTSA for support, and where possible there is a consolidation of resources. The program started with just 3 mentors and now has 14. P&T guidelines were modified to recognize excellence in mentoring and team science which has been helpful. Other departments have gotten involved and use the program as a recruiting tool. We have a dedicated office for the program which increases its perceived importance. The results have demonstrated value to the institution.

The review of applicants is vigorous. Most K award applicants are Assistant Professors in their 2nd or 3rd year of a startup. The applicant’s Chair must guarantee 30% protected time, but many need more. These factors support the high success rates of selected applicants. The training of mentors differs by department.

Important considerations for resident research success include creation of an infrastructure that utilizes existing resources. Designated faculty mentors and developing incentives for mentorship. Creating opportunities for success for individual faculty, the department, and institution. Ensuring that the experience leads to publications for both the faculty and residents. Finally, education and mentoring credit for designated faculty.

Implementing a Resident Research Program to Overcome Barriers to Resident Research
Michael Rothberg, MD, MPH
Tara Lagu, MD, MPH
[Link to slide presentation](https://www.aamc.org/download/433724/data/rothbergandlagu.pptx)

As reported by residents and program directors, the most common obstacles to resident research is resident interest, time, technical support, mentors, and research skills. To increase resident interest in research, the Baystate Resident Research Director cultivated an atmosphere of inquiry within the health system. This included implementing an EBM curriculum and EBM conference at the institution. The program focuses its effort son residents with an interest in research. The program actively celebrates the achievements of the residents and highlights resident and faculty publications. These efforts have resulted in increased interest by others.

To tackle the obstacle of time, Baystate decreased the amount of time required by the residents by encouraging smaller projects, minimizing data collection, and expediting IRB approval. The program also worked to increase the amount of time that residents had available for research by adding protected time and creating research electives. Additionally, whenever possible, Baystate utilized the services of a dedicated Research Assistant. In addition Baystate provided time with a statistician (who assists with sample size calculations, study design and analysis), and had a designated IRB member.

The establishment of a mentorship program focused on first identifying potential mentors and setting departmental expectations for faculty. Discussions with departments also asked for an assessment and consideration for mentors for new hires. Baystate worked to maintain the mentorship program by setting explicit expectations for mentors and mentees.

Key to the maintenance and continued improvement of the resident research program is the continued support for the Directors, statisticians, and Research Assistants - both financially and culturally.

Participants discussed that given the time pressure the need for monitoring of resident research progress is important. It is key to have residents invested in their own work to finish in time. Mentors can be helpful in providing reminders and check-ins.

The Baystate program is supported by a Research Program Director whose responsibilities included establishing an EBM program and enhancing resident research. The Research Assistant dedicates 20hrs/week serving as a force multiplier. Baystate supports resident travel to conferences to present work.

The program has helped the residency Match and fellowship placements. It has helped cultivate a “culture of inquiry” at Baystate, where providers are rethinking things clinically and are contributing to making their institutions an interesting place to work.

Bridging the Gap: Supporting Translational Research Careers through an Integrated Research Track within Residency Training
Melissa R. Arbuckle, MD, PhD
[Link to slide presentation](https://www.aamc.org/download/433720/data/arbuckle.pptx)

The Columbia University Medical Center, Department of Psychiatry research training program addresses several challenges residents face in balancing both clinical training, research training, and personal needs (such as financial strain).

Research Training: The start-stop approach in resident research often leads to failure; thus a commitment to research across the continuum of training is important. In addition to accomplishing specific research milestones during the first two years of training (identifying a research mentor and developing a project proposal), research track residents (RTRs) have 40% protected time to do research (2 months) during the third year and 80% protected time in the fourth year. The research training program includes development of a personalized research development plan; research mentorship; opportunities to build a research portfolio; integration with research colleagues; and integration with post-residency fellowship training. Additional elements of the research track include; rotations through clinical research units; preparation of a research fellowship application (year 4); peer mentorship; and participation in research seminars.

Clinical Training: While developing research skills, it is important that RTRs are well integrated into the clinical training program. In addition, there is a need for transparency when it comes to the allotment of protected time for research and clinical demands. Resident schedules are adjusted so that RTRs and non-RTRs share high-intensity service demands (such as over-night call). It is also important that additional time for research for RTRs does not mean extra clinical work for non-RTR peers.

Personal Needs: Trainees committed to a research career face considerable financial strain with research fellowship stipends significantly lower than the attending salaries they might otherwise earn in clinical settings. In order to offset this financial challenge, residents who commit to research fellowship training are provided additional foundation support for years 1-2 ($20K) & 3-4 ($15K).

The program is financially supported by both an NIH R25 grant and private foundation. Challenges for training directors include: balancing ACGME clinical training requirements with research training; clinical demands being shared equally with other residents; and maintaining continued financial support for the program.

Facilitation of Resident Scholarly Activity: Strategy and Outcome Analyses Using Historical Resident Cohorts and a Rank-to-Match Population
Tetsuro Sakai, MD, PhD
Rita M. Patel, MD
[Link to slide presentation](https://www.aamc.org/download/433722/data/sakaiandpatel.pptx)

The scholarly development initiative at the University of Pittsburgh School of Medicine started in 2006, with scholarly productivity increasing drastically in the last 9 years. The residency research rotation is now very popular with up to 40% of fourth year residents completing the rotation. The success of the research residency training program depends on finding the right people to lead. It is key to share successes – across departments, across the institution, and nationally across the GME community.

The first two years of residency are mostly focused on developing clinical skills. Having a supportive curriculum structure and research network is very important, mentorship is vital. An important first step to identify key personnel who can guide the resident in the direction of interest. Institutional support for this “key personnel” is very important.

Institutional level support for scholarly activity and support from ACGME is also vital. Service and clinical productivity are clearly outlined by ACGME for all specialties, however, within individual specialties there are specific program requirements for scholarly activity, and understanding those requirements is helpful.

Participants discussed how residents have different reasons for their interest in research. Residents who feel uncomfortable revealing their uncertainty may best be presented with research opportunities later on in their training. CTSA and T32 grants may provide opportunities for broader resident engagement in research in various stages of training.

Individual Institutional Team Brainstorm and Report Out

* Describe current resident research engagement.
* Identify goals to enhance research engagement programs.
* Outline milestones and timelines for reaching goals.
* Identify measurable outcomes that the AAMC can use to help track program success.
* Identify measures that can be utilized by research residency programs to measure progress and outcomes of resident engagement.

University of Minnesota

Current: There is a high level of resident involvement in research, but the depth may not really constitute scholarly inquiry.

Goal: To better understand where the program currently is, and where the institution would like it to go.

This involves data gathering to determine the quality and level of research that is taking place, and conducting a needs assessment to determine what the residency research programs feel would help promote their program. Plan to use the meeting’s application to gain a better understanding of the level of activity currently happening within programs. This is a good time to invest. The institution is interested in improving patient safety and the new Dean is interested in increasing scholarly output from all. Plan to use presentations from meeting to show lessons learned and demonstrate just how much investment can result in a significant return.

Howard University

Current: 18 family medicine residents are required to become engaged with research at some point during their residency. However, the time and duration of exposure varies by resident.

Goals: (1) increase excitement around research by having residents present to peers and share their work, (2) improve the curriculum by requiring mentorship training and reach out to the CTSA to see if a mentorship training program already exists, (3) increase social media tracking of resident activity, (4) implement the PBLD model and increase systems-based learning, (5) switch from a top-down approach where faculty interest dictates research programs to one where resident interest drives research, (6) archive didactic information so that it is available to interns throughout the year, rather than all at once in the beginning of their internship.

Measuring Outcomes: (1) implement a systematic process for delivering a pre- and post-survey to gauge changes in interest and exposure, (2) utilize a logic model to identify both short and long term goals for the program.

University of Nevada School of Medicine

Current: Given the geographic spread of the different institutional campuses, it is challenging to keep track of the different programs and different funding sources/levels.

Goal: (1) gain a baseline understanding of what each campus and program are currently doing, (2) begin pilot program in internal medicine where 100% of residents who are interested in research are assigned to a project, (3) 50-70% of those assigned to a project complete the project and get to the dissemination (presentation to publication) phase.

Outcomes Year One: (1) how many residents are interested, (2) find potential mentors and implement faculty development for mentorship skills, (3) explore cross-departmental and Interprofessional (law school, public health school) collaboration, (4) Program Directors monitor the number of residents pursuing research, (5) develop online RATs (residents as teachers) modules focused on research, (6) gain additional support for statistical staff.

Outcomes Year Two: (1) faculty and resident champion roles have been established, (2) tracking of matched residents has improved, (3) proposal developed for additional hospital partnerships.

University of Michigan

Current: Programs operate in silos. There is a need to communicate across departments to identify a common understanding of scholarship, while accepting that resident projects and level of involvement will vary.

Goal: Identify ways to increase consistency and establish a common baseline of exposure across departments by (1) identifying key contact for each department, (2) taking inventory to better understand what each department is doing, (3) find projects that can be conducted across departments (e.g. transition of care).

The Ohio State University Wexner Medical Center

Current: Large program with over 800 residents that have different trainings and are involved in a wide array of projects.

Goals: (1) break down silos and integrate work being done across disciplines by aligning common goals, (2) identify what early experiences and exposure to research results in the pursuit of a career in academic medicine, (3) increase the focus on patient safety outcomes research by frequently asking both medical students and residents what they have done to improve patient safety/quality improvement, thereby making it a professional development piece, (4) identify ways to ease the use of IRB by establishing electronic questions that expedite exemption status and provide staff support for utilizing the process.

Outcomes: (1) increased percentage of residents engaged in research, (2) increase in number and quality of publications, and communicate this success across the institution, (3) incentivize reaching patient safety outcomes.

Brigham & Women’s Hospital

Current: The “Interest Academy” is led by residents and allows residents to see what other departments are doing. Residents are matched with a mentor immediately based on interest and the institution has a focused international mentorship program. During Senior Day, residents are required to present their scholarly project and they are encouraged to perform lit reviews and presentations throughout the year. The institution also provides residents with a $1200 stipend to travel and present at different conferences.

Goal: (1) increase awareness of the research opportunities by focusing on what resources are currently available at the annual residency retreat, (2) increase faculty engagement and host a conference day where faculty present their current research, (3) develop a structured curriculum that integrates research exposure, (4) develop a resident “toolkit” that includes resources on project design and biostatistics.

Outcomes: (1) strengthened relationships across specialties within the Harvard system, (2) develop focused international emergency medicine track.

Temple University School of Medicine

Current: To overcome the challenge of capturing what research the residents are doing, Temple has check-ins built into the curriculum. (1) Monthly meetings with fellows from all over GME who share the generation of their research projects from proposal, IRB, and stats to manuscript submission. (2) Residents present their research at the end of the year as a way to celebrate and recognize successes. (3) “Resident Research Conferences” are a peer protected group where 2-3 residents share where they are in the project process and hear feedback from their peers.

Goals: (1) connect with other specialties/schools outside of the department of medicine, (2) host an interdisciplinary research meeting at the end of the year, (3) Within the department of clinical sciences, establish a faculty/staff member who is the dedicated resident support person who helps with project proposal, project design, biostatistics, IRB, and problem solving, (4) strengthen current mentorship program by inviting experts to come to Temple to speak and dedicating resources to faculty development, (5) dedicate more resources towards following through with residents to ensure completion of projects and preparation of manuscripts.

Outcomes: Executive leadership approves proposal that outlines the above goals.

Washington University School of Medicine in St. Louis

Current: The large residency training program spends significant time recruiting, offers plenty opportunities for residents, and find most residents are motivated to become engaged with scholarship. One opportunity is “Mentors in Medicine” which pairs incoming interns with faculty mentors to develop research projects and apply for internal funding ($5k/resident). Another opportunity is the “Clinical Scientists Training and Research” course which spans 3 months and covers how to develop a research project.

Goal: (1) make it easier for residents to become engaged if interested by making available resources more readily available and easily accessible, (2) provide faculty development for those mentoring, (3) employ a full time Research Assistant who is skill in biostatistics, (4) establish an expedited IRB process, (5) celebrate resident successes on a community board and through a newsletter that features their pictures, publications, grants, presentations.

Outcomes: (1) presentations at scientific meetings, (2) full length publications in high impact journals.

AAMC Support

AAMC can track progress, connect institutions, and share what they are doing.

AAMC could develop a small award program for residents who have the support of faculty. These smaller funds ($2k/award) could be offered in a competition format.

Additional Thoughts

When presenting the case for resident research engagement to leadership, bring PBO, department chairs, chief resident to make the case for retention and recruitment, fellowship directors. While baseline exposure is important for all residents, focus resources on those who are most interested.

If you invest (financial, recognition, promotion/tenure), people involved will become invested. Gathering and tracking metrics (abstracts, publications, book chapters, awards, grants received, and outcomes) is important. These measurements can be a powerful motivator, especially as it relates to institutional reputation and recruitment.

To keep motivation after the meeting, set new goals as current goals are attained.

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