

Best Practices in Resident Research

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Introduction

- The acquisition of research skills during residency is essential
- The ACGME requires that residents participate in scholarly activity
- Few studies have quantified the extent of research training in residency
- We conducted a novel research focused survey of research in residencies:
 - Our goal: to describe how **IM residency programs with experience** in research promote research experiences and skills among trainees and to highlight best practices

Background - Nationwide Survey of IM Residency Program Directors



AAIM Perspectives

AAIM is the largest academically focused specialty organization representing departments of internal medicine at medical schools and teaching hospitals in the United States and Canada. As a consortium of five organizations, AAIM represents department chairs and chiefs; clerkship, residency, and fellowship program directors; division chiefs; and academic and business administrators as well as other faculty and staff in departments of internal medicine and their divisions.

Resident Research Experiences in Internal Medicine Residency Programs—A Nationwide Survey



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Previous PD survey- Takeaway points

- 252 (**65%**) Program Directors responded
- Vast majority (87%) of programs offered a **research track, rotation or protected time for research**
- The frequency and breadth of research was highest in programs with a **formal research track** (53-94%)

Current Survey of Programs with Experience in Resident Research

- Phone surveys of Program/Research Directors at 15 IM programs
- Selected a convenience sample of programs:
 - NIH funding rank (BRIMR)
 - geographic diversity
 - scholarship in resident research

- Baylor
- Cleveland Clinic
- Harvard
- Johns Hopkins
- Mayo
- Northwestern
- UC Denver
- University of Minnesota
- UCSF
- University of Alabama
- University of California-Davis
- University of Washington
- UTSW
- Wash U (St. Louis)
- Yale

Methods

- We developed and validated the survey
- Survey Domains:
 - Program Characteristics
 - Description of the Research Program
 - Resources for research
 - Role of the research director
 - Profile of trainees doing research
 - Curriculum description
 - Career guidance and role of mentors
 - Scope of research
 - Career choices
 - Research awards
 - Main determinants in research success
- All interviews recorded and transcribed (60-90 min)
- Common themes identified

Program Characteristics

Name of program	Total Residents	Hospital Sites	Percent Engaged in Research	Research Track (other than PSP)	Research Curriculum
Baylor	150	4	50	Yes	No
Cleveland Clinic	150	1	100	Yes	Yes
Harvard Med School	120-140	3	80	Yes	Yes
Johns Hopkins	140	1	70	Yes	Yes
Mayo	144	2	100	No	Yes
Northwestern	120	2	Not tracked	Yes	Yes
UC Denver	150	4	Not tracked	Yes	Yes
UCSF	175	3	100	Yes	No
University of Alabama	117	2	Not tracked	Yes	Yes
University of California-Davis	86	3	50	Yes	Yes
University of Minnesota	91	3	50	No	No
University of Washington	159	3	60	Yes	No
UTSW	163	3	100	No	No
Wash U (St Louis)	150	2	80	Yes	Yes
Yale School of Medicine	136	2	60-70	Yes	No

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More on Curriculum

<p>Formal</p> <p>Block</p> <p>Yearlong</p>	<ul style="list-style-type: none">• Web-based modules<ul style="list-style-type: none">○ IRB /CITI training○ NIH or CTSA; NYU training modules• Seminars<ul style="list-style-type: none">○ How to choose a mentor○ How to give a presentation○ Manuscript preparation; grant writing○ How to prepare a protocol○ Research funding○ Physician scientist career• Experiential<ul style="list-style-type: none">○ EBM (Journal Club; yearlong, integrated & tailored)○ Literature search/EndNote® training (librarian)○ Residents part of IRB panel○ Prepare study protocol• Courses<ul style="list-style-type: none">○ Overlapping with MSTP/PSP/fellowship○ Graduate (rare)
<p>Informal</p>	<ul style="list-style-type: none">• Mentor led

Research Type and Productivity

Program Name	Types of research performed		Abstract and conference presentation	Manuscript publication
	<u>Clinical</u>	<u>Basic</u>		
Baylor	Most	<10%	~25%	~10%
Cleveland Clinic	Vast majority	0%	>50% of residents present nationally	1/3 publish per year 19 original research last year, 25 review articles
Harvard	33%	33%	30-40% national abstracts	20-30% publish a paper
Mayo (MN)	66%	10%	All residents submit abstracts (requirement)	80-90% of graduating class publish at least 1 manuscript
Northwestern Feinberg	50% (PSTP)	50% (PSTP)	50%	About 75%
UAB	80%	Unknown	26% presented at a meeting	24% published at residency completion
UC Denver	66%	25%	Almost all submit abstracts	10 published last year
UCSF	50%	Unknown	50%	20-25
Johns Hopkins	?	30-40%	70% submit	75-80% published at residency completion
UMN	80%	Very few	Estimate 60%	10/year
University of California-Davis	70%	10-15%	Among residents enrolled in research track (25 residents at any given time): All present abstracts	Among residents in track (25 out of 86), 1/4 to 1/3 publish
UTSW	37.5%	25%	Missing	Missing
UW	60%	20%	Majority who do research present (local, regional, national) 12/year at a national meeting	25 last year
WUSTL	Majority	Unknown	30 abstracts/year	140 published in 10 years
Yale school of Medicine	>90%	Unknown	All residents in pathway	not tracked (few)

Research Type and Productivity

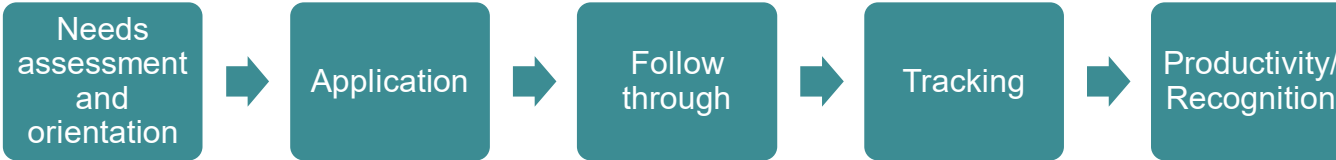
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Best Practices in Resident Research

Resident/program checkpoints



Ongoing Program Responsibilities and Resources

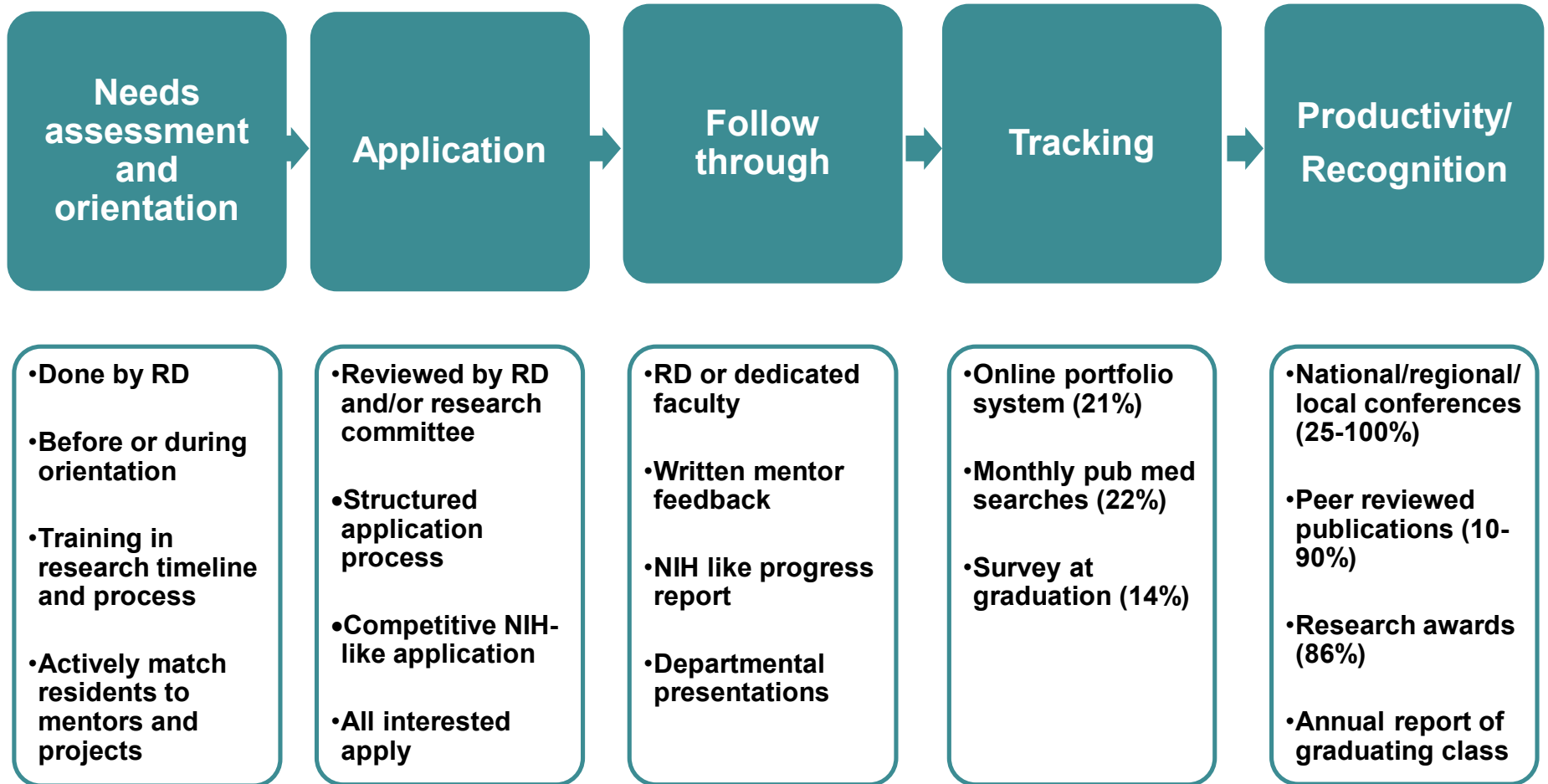
Research Oversight

Program Support

Funding

Career Counselling and Research Mentorship

Best Practices in Resident Research



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Resident/
program
checkpoints



Ongoing Program Responsibilities

Research Oversight

- **Research director** (92%)
 - APD (58%)
 - Research faculty
 - Dedicated FTE (0.1-0.4)

Research committee

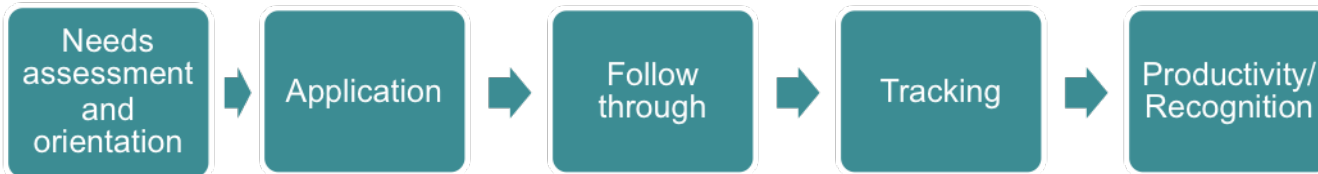
- RD, DOM chair, PSTP director
- Quarterly meetings

Roles

- Mentor residents
- Recruit with a focus on research
- Orientation & needs assessment (71%)
- Review research applications (78%)
- Set curriculum (58%)
- Faculty development
- Facilitate mentor networking and selection (71%)
- Track and review presentations/publications
- Encourage original research ideas
- Research day/awards
- Prepare yearly research report
- Secure funding

Best Practices in Resident Research

Resident/
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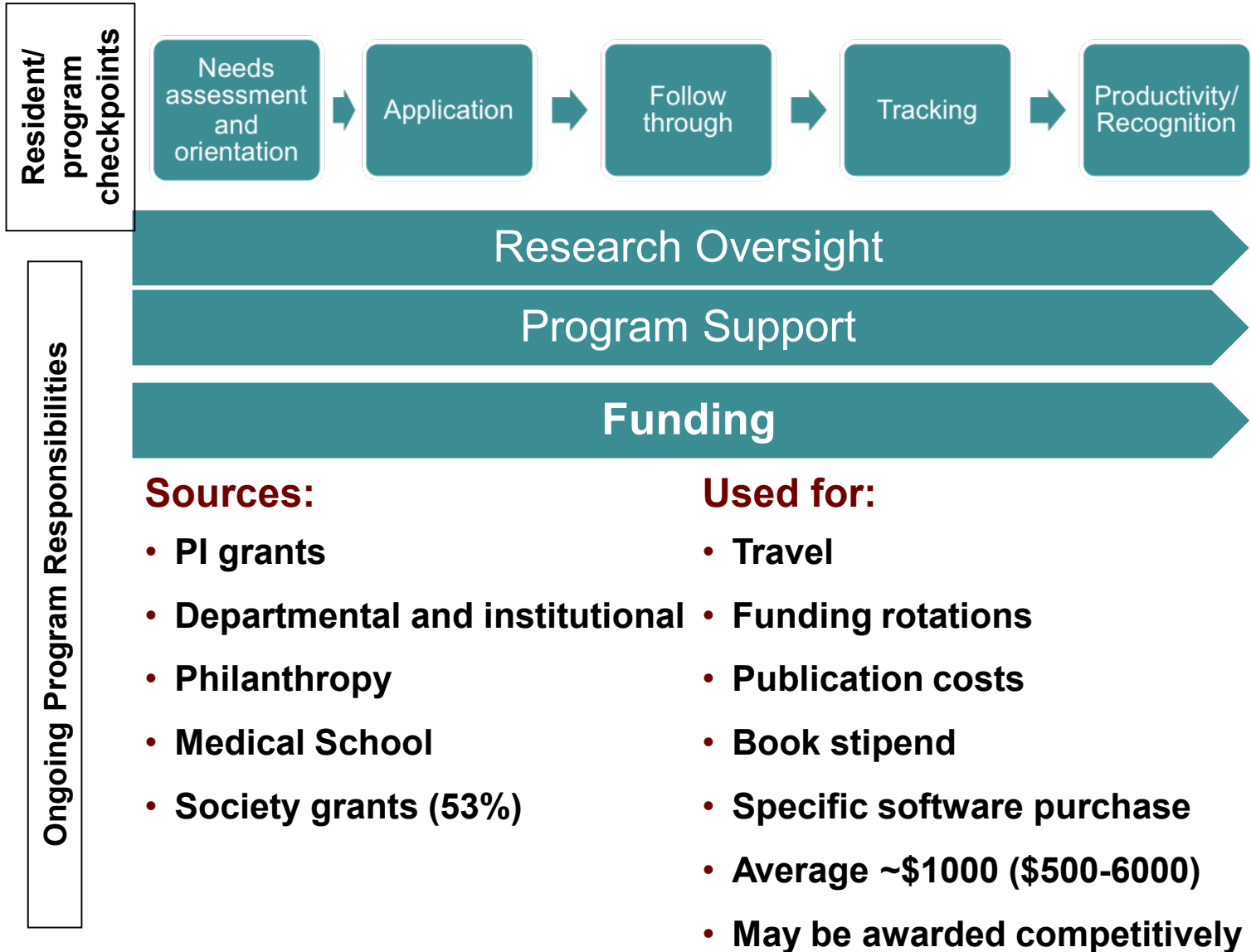
Research Oversight

Program Support / Resources

Ongoing Program Responsibilities

- **Research Chief Resident (CR)**
 - Helps coordinate needs assessment and facilitating mentor selection
 - Teach EBM
- **Administrative (46%)**
 - Dedicated time (0.2-0.8 FTE) for admin support
- **Statistician (66%) and data programmer (50%)**
 - CTSI and School of Public Health resources

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Research Oversight

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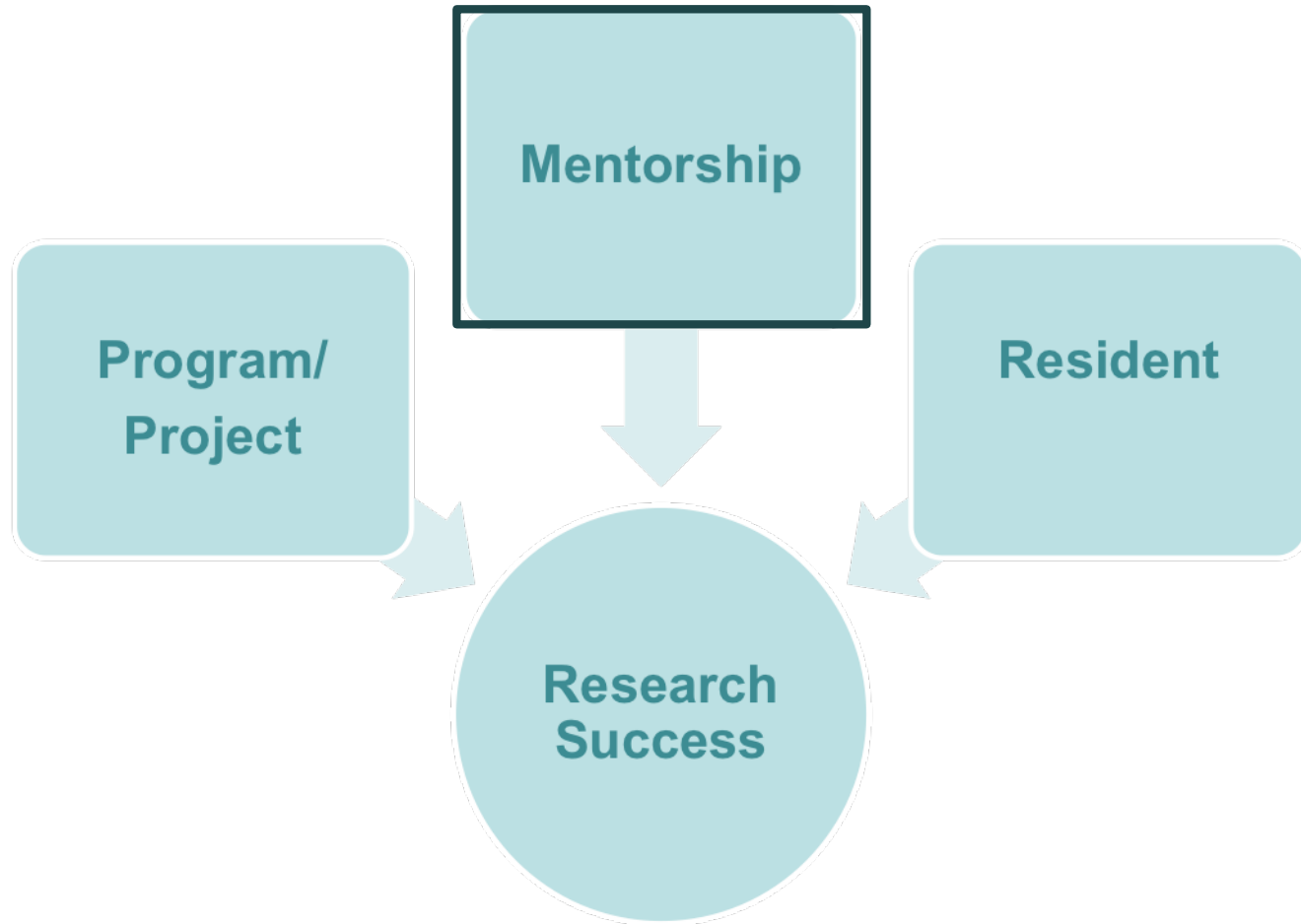
Funding

Career Counselling and Research Mentorship

Ongoing Program Responsibilities

- **Multifaceted**-Quarterly/biannual meetings; informal events
 - Program mentor (PD/APD/CF/Coaches)
 - Committee (Chair/PD/RD/PSP Director/Fellowship Directors)
 - Peer mentor “Big sibling”
 - Primary research mentors
- **Most without formal process for pairing residents with mentors (14/15)**
 - PD/APD/CR/RD (66%)
 - Resident-driven (2/15)
 - Track Director (1/15)

Factors Associated with Success and Challenges



Mentorship

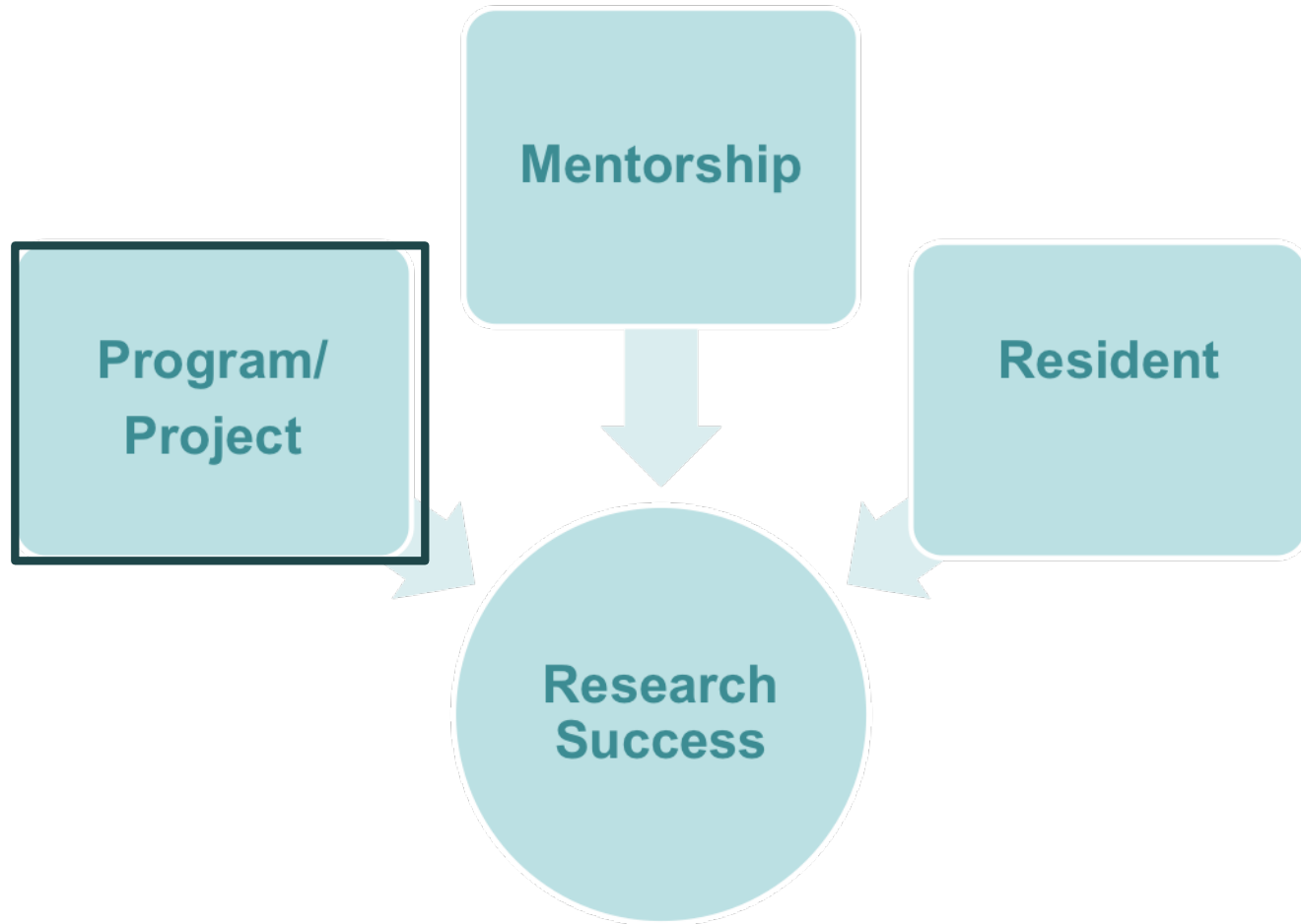
Factors associated with research success

- **Large and effective mentor pool**
- **Match** between mentor's and resident's research interests
- **Faculty development;** formal program (30%)
- **Incentives/recognition** (promotion; salary support)
- **Funding**

Challenges

- **Difficulty finding mentors** (50%)-Low volume in highly competitive specialties and lack of faculty expertise
- **Clinical pressure and mentor fatigue** (50%)
- **Lack of incentives and/or support**
- **Lack of funding**

Factors Associated with Success and Challenges



Program/Project related

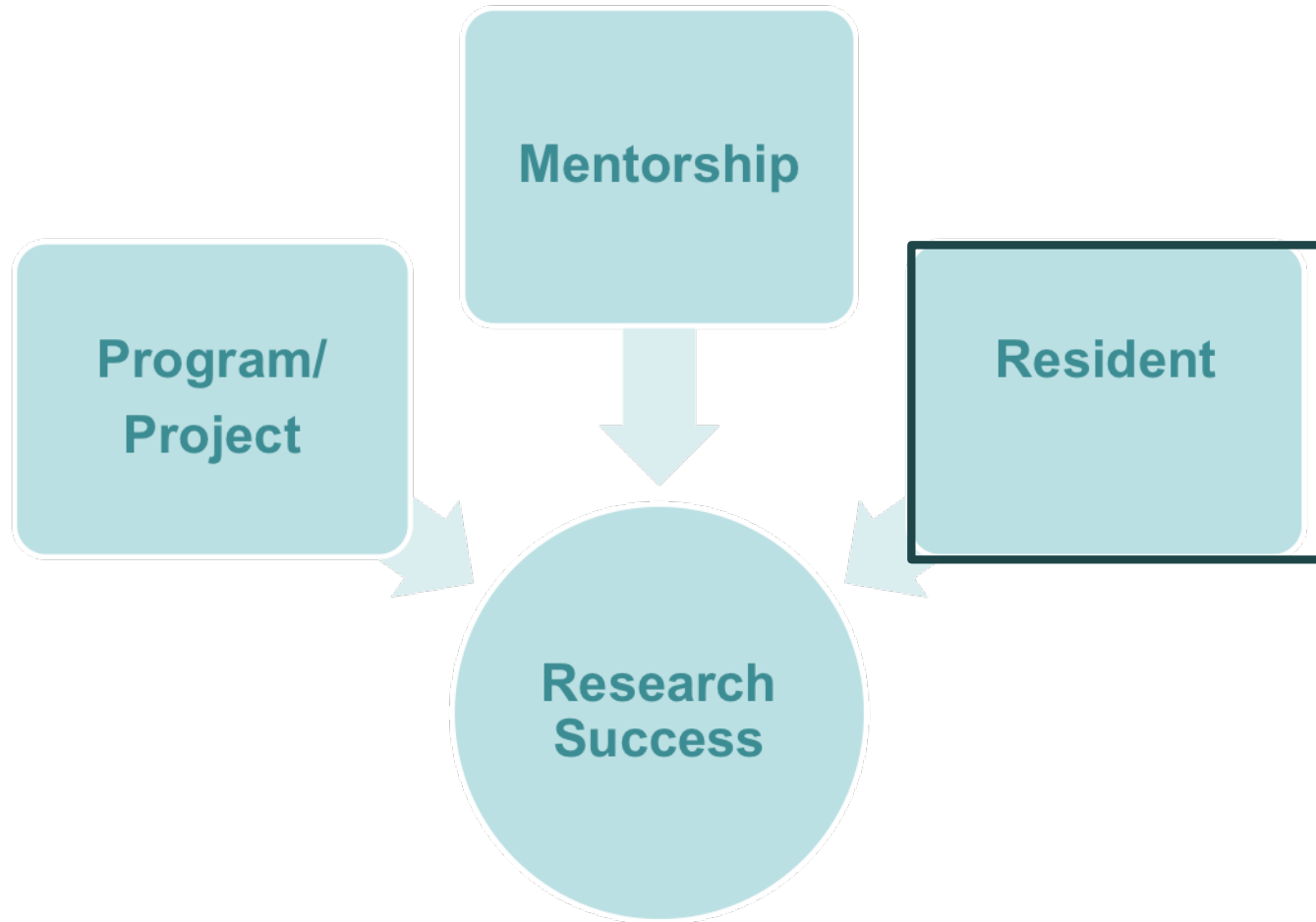
Factors associated with research success

- Formal oversight process
 - RD or Committee
 - Mentorship team
- Formal structured process or track
- Resources:
 - Statistician, admin support, funding
- Formal curriculum
- Scope of project:
 - Retrospective chart reviews, surveys, secondary analysis of data sets

Challenges

- Lack of oversight and coordination
- Lack of formal process or track
- Scope too large, low feasibility

Factors Associated with Success and Challenges



Residents

Factors associated with research success

- **Support**
 - Protected time
 - Match residents' interests with mentors' expertise
 - Provide ongoing support until trainees achieve success
- **Motivate**
 - Set research goals and expectations
 - Create culture of scientific inquiry
 - Expose residents to role models and researchers
 - Recognize residents (awards; travel)
 - Fellowship

Challenges

- Lack of protected time
- Too much clinical pressure
- Navigation of IRB
- Lack of flexibility in schedules for a more meaningful research experience
- Inability to travel to present research
- Residents not completing their research projects



Recommendations for programs that wish to improve research training

- Embrace a culture that emphasizes research and scholarship as a priority and an expectation for faculty and for residents
- Provide a structured approach to resident research and publish outcomes. Provide oversight by a skilled RD
- Match residents' interests with mentors' expertise
- Enlarge mentor pool to offset mentor fatigue: Identify potential mentors who are interested and have a record of success in resident research
- Ensure that research goals are realistic and feasible
- Protect residents' time for research
- Develop a research curriculum to teach research skills early
- Provide resources for residents and mentors (admin, stats, travel funding, publication costs)
- Recognize residents and mentors who are successful
- Consider a structured approach to mentorship - formal mentorship program

Acknowledgements

- Programs Directors and Research Directors who responded to surveys
- AAIM Research Committee Members
- AAIM Administrators

Thank you!



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Learning Objectives

- *Discuss strategies to effectively engage residents in research*
- *Define proper conduct, oversight and support that contribute to a successful research program*
- *Identify common barriers to successful maintenance of a resident research program*

