



# Enhancement of the resident didactic experience through combined pre-lecture readings, case-based learning and written board style questions.

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## Introduction

Didactic lectures of core specialty topics are a fundamental learning platform for graduate medical education. The Accreditation Council of Graduate Medical Education (ACGME) mandates that residency programs provide a “broad range of structured didactic activities” for the “advancement of residents’ knowledge...”<sup>(1)</sup> The primary objective of an effective and robust didactic curriculum is to supplement clinical education so resident physicians can become expert clinicians and provide the highest standard of care to their patients. But studies estimate that long-term retention of adult learners in traditional lectures alone can be as low as 5% (2).

The execution of a didactic curriculum varies between institutions and residency programs. Over the past five years, the Department of PM&R at UT Health- San Antonio has implemented multiple revision to its curriculum in attempting to maximize the learning environment, but has largely remained exclusively lecture-based. Traditional lecture formats as the sole and primary means to provide formalized education have been scrutinized in recent years. Alternative methods, such as case-based learning (CBL) have shown to be an effective and enjoyable method of teaching in the graduate medical setting (3, 4). Additional tactics such as pre-lecture readings and quiz-style questions one would see on the written board examination are also supplemental methods to enhance overall learning.

An additional learning and assessment tool used in physical medicine and rehabilitation is the annual Self-Assessment Exam for Residents (SAE-R) administered through the American Academy of Physical Medicine and Rehabilitation (AAPM&R). Residents in physiatry across the country participate in this examination which tests their clinical knowledge compared to their cohort. In 2017, our residency program opted out of the SAE-R which continued though 2019. The year 2020 was the first time residents from our program had taken this exam in three years. To our discouragement, but not to our surprise, the overall performance from our program was substandard. According to Moroz and Bang, the SAE-R can be helpful in predicting performance on the written board examination administered by the American Board of Physical Medicine and Rehabilitation (ABPMR), specifically in identifying at-risk residents for failure which appears to be around the 47<sup>th</sup> SAE-R percentile (5). Of those PGY-3 and PGY-4 residents from our program, 57% would be considered “high risk.” Although the first-time written board pass rate for our program during the past five years is 95%, this performance on the SAE is troubling and may reflect a need to address our didactic format.

The aim of this project was to enhance our traditional didactic format, increase overall satisfaction of the residents, ensure their success with written board preparation, and ultimately help them incorporate didactic material into their clinical practice with the implementation of three separate supplemental academic activities (pre-readings, patient cases, and quizzes). As a result of this project, we anticipated improved satisfaction with weekly lectures, increased retention in medical knowledge, and improved application of clinical principles. We also hope for improved SAE-R scores. Ultimately, we anticipate that this will serve a first step in a long-term process of incorporating adult learning theory, cognitive psychology, and active learner activities into our didactic curriculum.

## Methods

In addition to our traditional lecture-based didactic format (via virtual learning due to COVID-19 precautions), the following changes were implemented from 08/01 – 12/18/2020:

- Each week, PGY2-4 residents were given a suggested short pre-reading from primary literature, textbooks or the AAP “Essential Articles” list that related to the specific lecture topics that were delivered. These readings were chosen through collaboration with residency leadership as outlined above. Readings were encouraged to be completed prior to lecture, but were optional.
- Residents were given weekly patient cases related to the lecture topics to complete individually or in a group voluntarily sometime before lecture. These were authored by either residency leadership or faculty lecturers.
- Five-ten board-style timed questions (80 seconds per questions) were administered electronically on a weekly basis related to the assigned subject matter. Answers and explanations to the cases and questions were published, distributed and in some cases discussed.

Primary outcome measures will not be ascertained until after the conclusion of AAP which are SAE-R scores to be compared against last year’s scores. In addition, we will assess for a correlation between how well a resident does on weekly quizzes and self-report of involvement of weekly readings and cases and their SAE-R scores. This can eventually be trended to assess for overall success in the written board examination.

Secondary measures were ascertained using a Likert scale survey specifically assessing resident perception that these domains enhanced the lecture format before and after their implementation. Scores for quizzes and participation in cases and pre-readings were compiled and trended according to PGY-level.

## Results

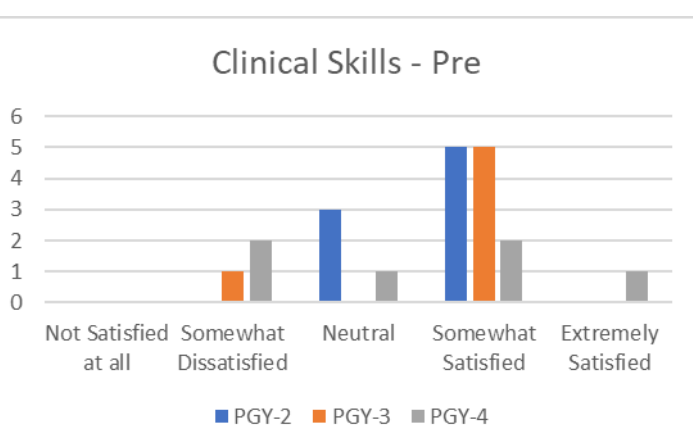


Figure 1  
Assessment of how satisfied residents were pre and post-implementation that didactics aid in the improvement of clinical skills.

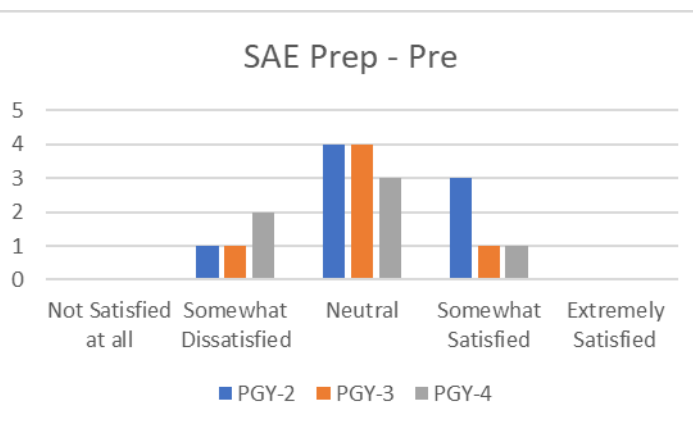
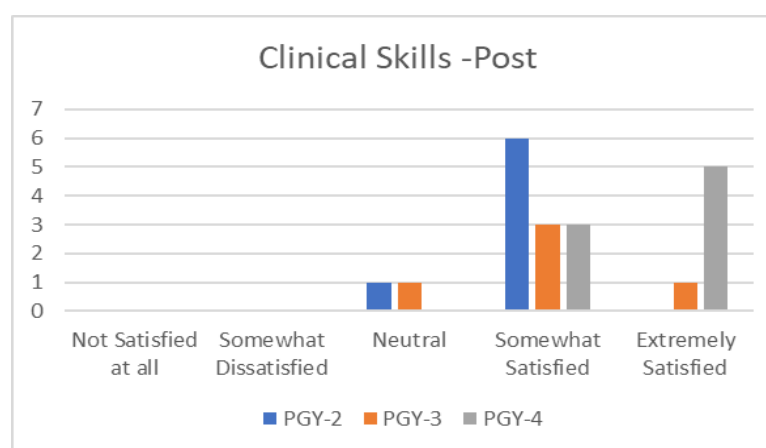


Figure 2  
Assessment of how satisfied residents were pre and post-implementation that didactics provide adequate preparation for the SAE-R examination.

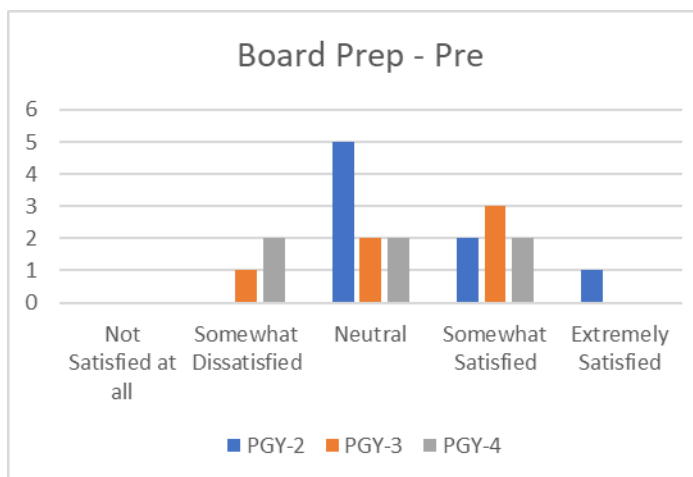
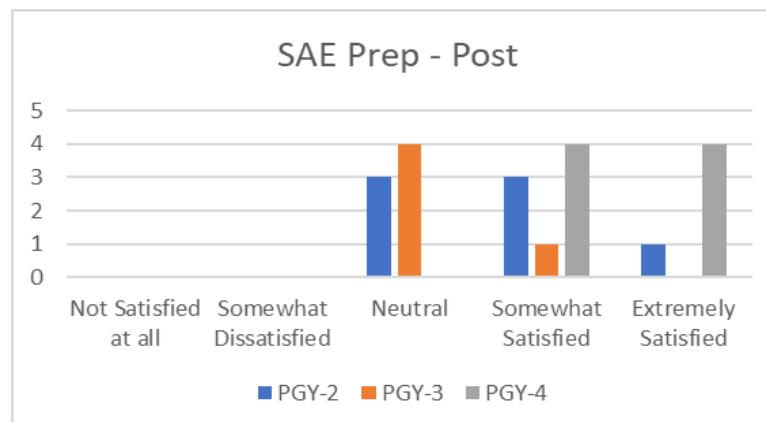


Figure 3  
Assessment of how satisfied residents were pre and post-implementation that didactics provide adequate preparation for the ABPMR Part I examination.

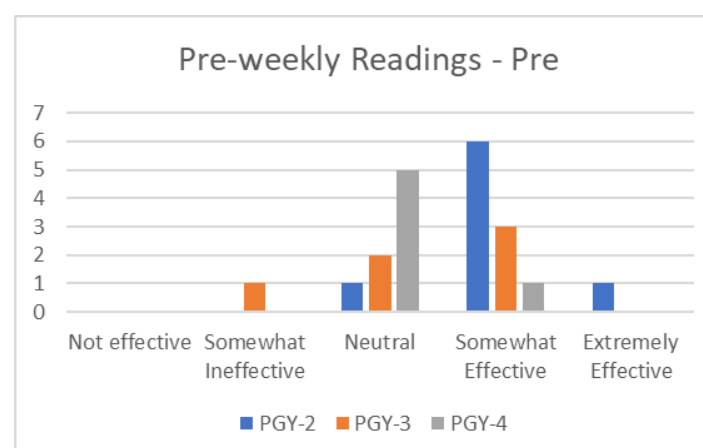
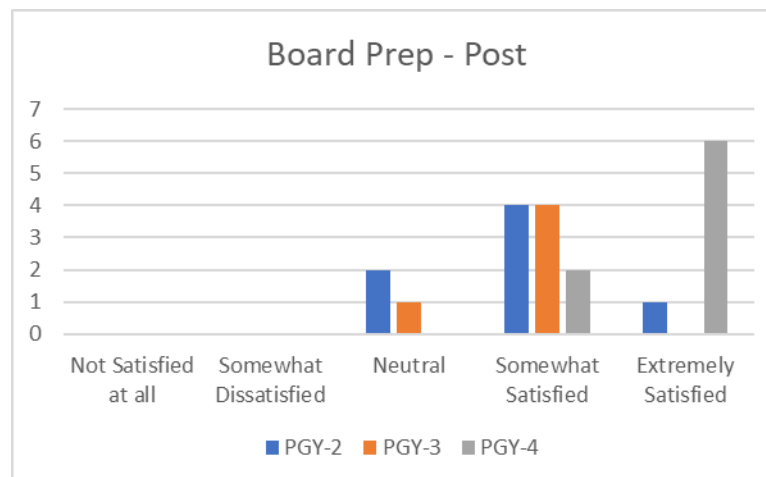


Figure 4  
Assessment of resident perception pre and post-implementation that pre-lecture readings coupled with didactics improve one’s ability to retain the information in lecture.

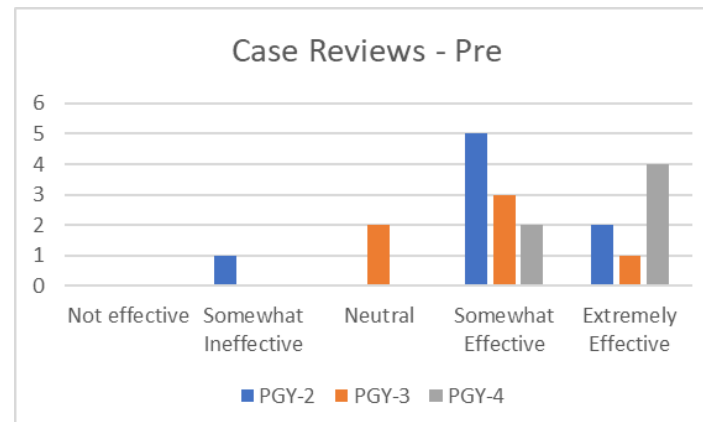
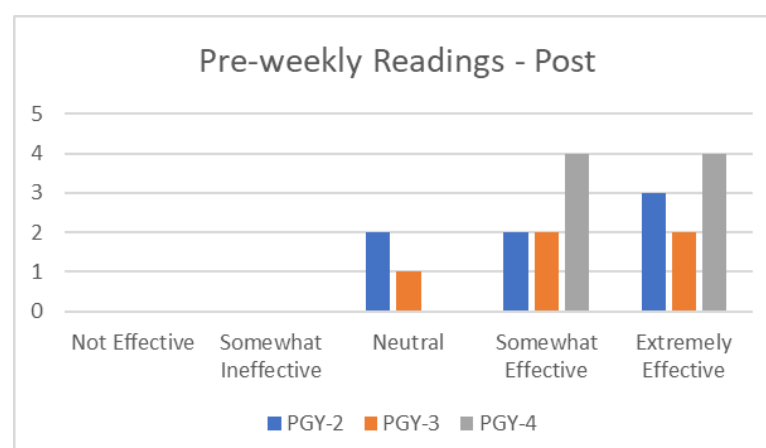


Figure 5  
Assessment of resident perception pre and post-implementation that case reviews coupled with didactics improve one’s ability to retain the information in lecture.

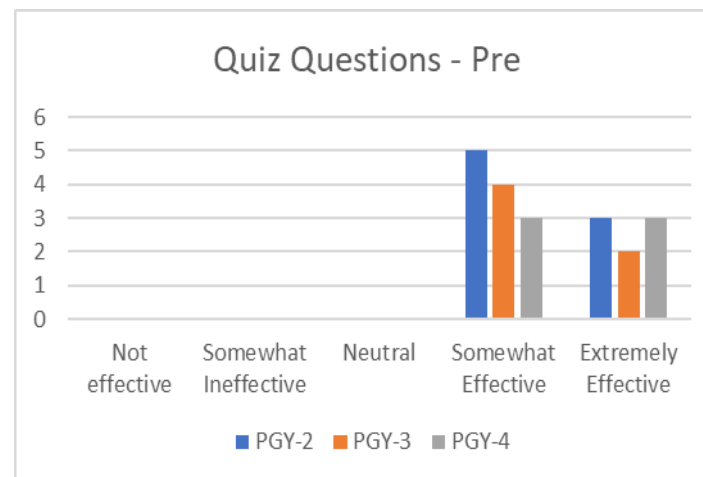
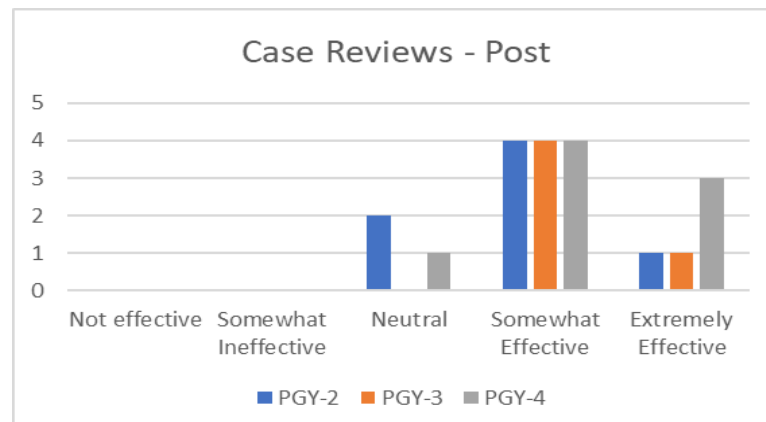
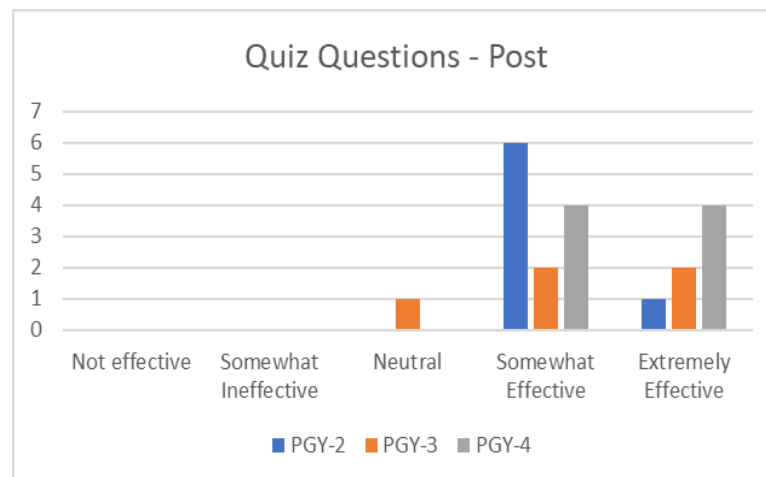


Figure 6  
Assessment of resident perception pre and post-implementation that written board style quiz questions improve one’s ability to retain the information in lecture.



Resident Class	% Cases Completed	% Readings Completed	Average Test Score
PGY-2	45%	42%	52.4%
PGY-3	58%	56%	59.1%
PGY-4	85%	71%	71.5%

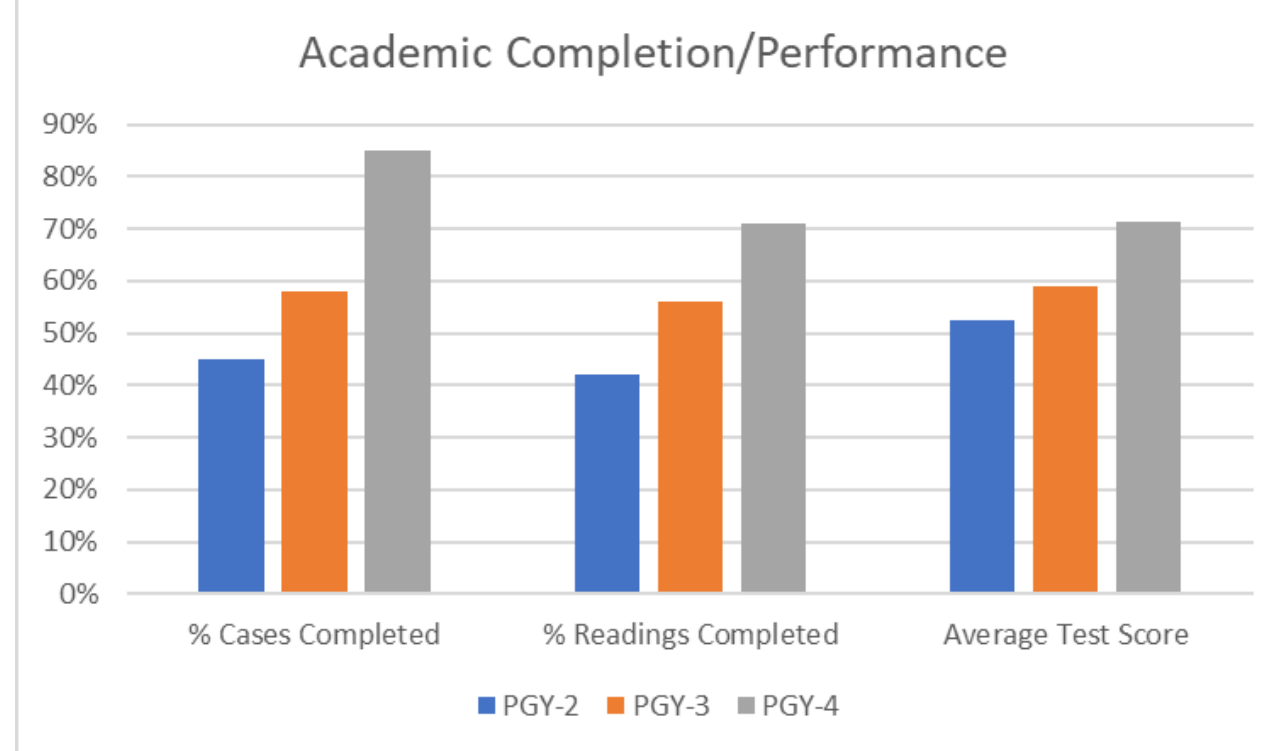


Figure 7  
Depiction of percentages of total cases and pre-readings completed per residency class as well as average weekly test scores per resident per class.

## Discussion

The hypothesis was that implementing these supplemental activities of pre-lecture reading assignments, case reviews, and board-style quiz questions will not only improve the perceived lecture experience and result in better SAE-R scores, but most importantly aid in making better physicians. Implementation of these activities has overall improved resident perception that they are being better prepared in clinical skill development, SAE-R preparation, written board preparation.

We also found that participation in these supplemental activities seems related to PGY level, with PGY-4s completing more cases and reading assignments. They also average a higher quiz score, but causality between higher scores and higher rates of completion of cases/readings cannot be determined as PGY-4 residents have acquired more knowledge inherent to their seniority. The reasons why PGY-2s and PGY-3s do not participate as much PGY-4s may be related to the fact that they are typically on busier services and are generally not as motivated to study as PGY-4s who are more actively preparing for the written board exam. Once the SAE-R has been completed, we will be able to take a specific individual’s performance and assess that against their participation in these readings/cases as well as their performance on weekly quizzes to see which activity enhances learning the most.

## Conclusion

Voluntary involvement in academic activities meant to supplement traditional lectures, such as case reviews, suggested readings and quizzes can improve perception that information retention is improved. This has been a uniquely challenging year with COVID-19 restriction in delivering quality didactics to our residency. But hopefully these measures will prove to show improved SAE-R scores and continued improved satisfaction with didactics that will lead to expanded and more innovative ways in delivering education.

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# A Parallel Self-Study Curriculum

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## Plan

### Statement of Need:

Residents had requested a structured guide for reading and studying that they can utilize at home, similar to what they had experienced in medical school and prior in regards to a syllabus. Residents voiced dissatisfaction with various prior attempts at providing more structure. After multiple open dialogues with the residents, a plan to create a parallel “self-study curriculum” was developed. Due to the pandemic, the residency program briefly transitioned to a “COVID schedule” that minimized patient exposure and had residents working from home. This COVID schedule compelled those involved in this project to finalize the self-study curriculum faster than originally planned and collect baseline data in a shorter amount of time.

**Desired outcome:** create the foundation for a parallel self-study curriculum to complement didactic lectures that enhances the learning environment. This will be measured by SAE and ABPMR board scores, ACGME survey results, internal survey results (including DREEM-12), and face to face discussion.

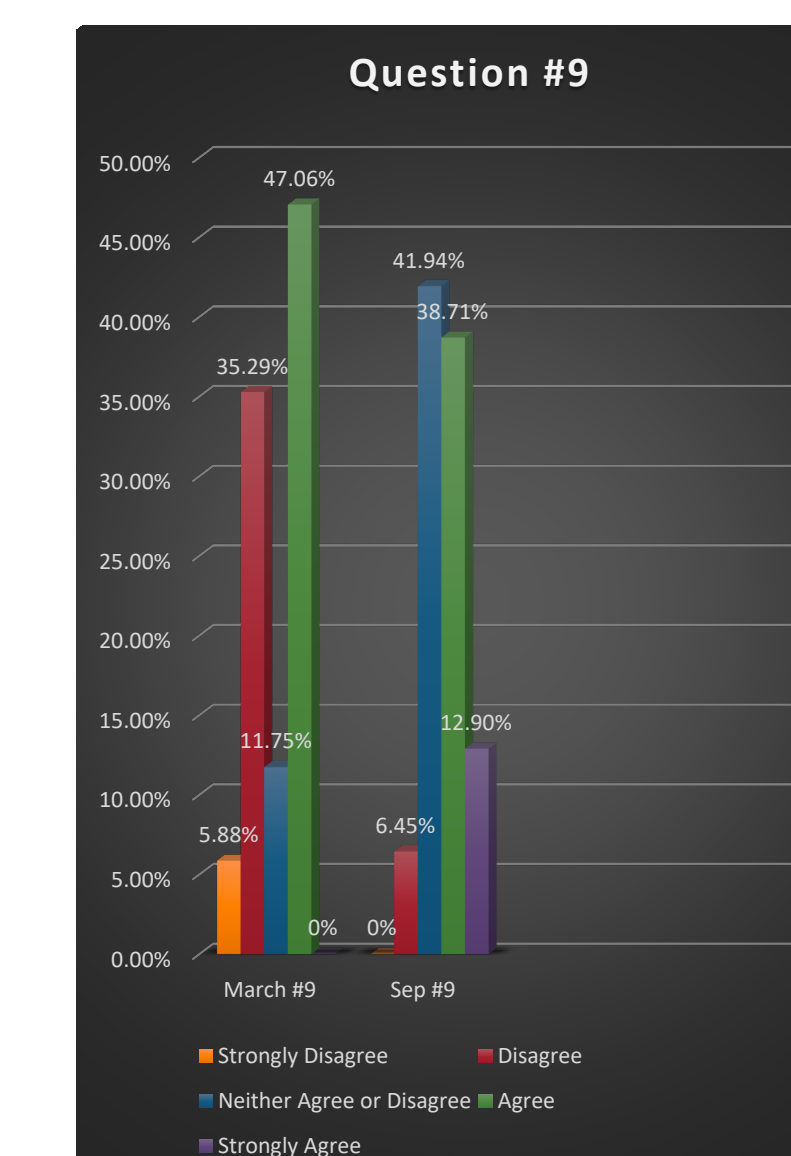
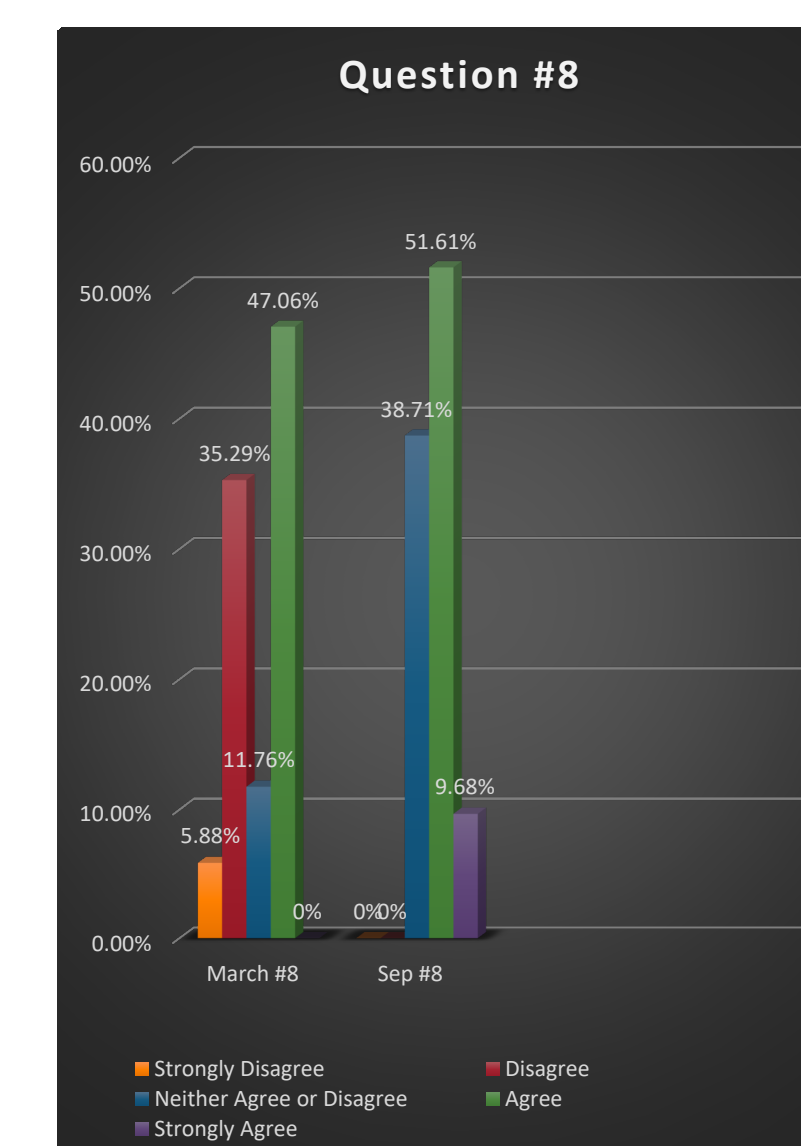
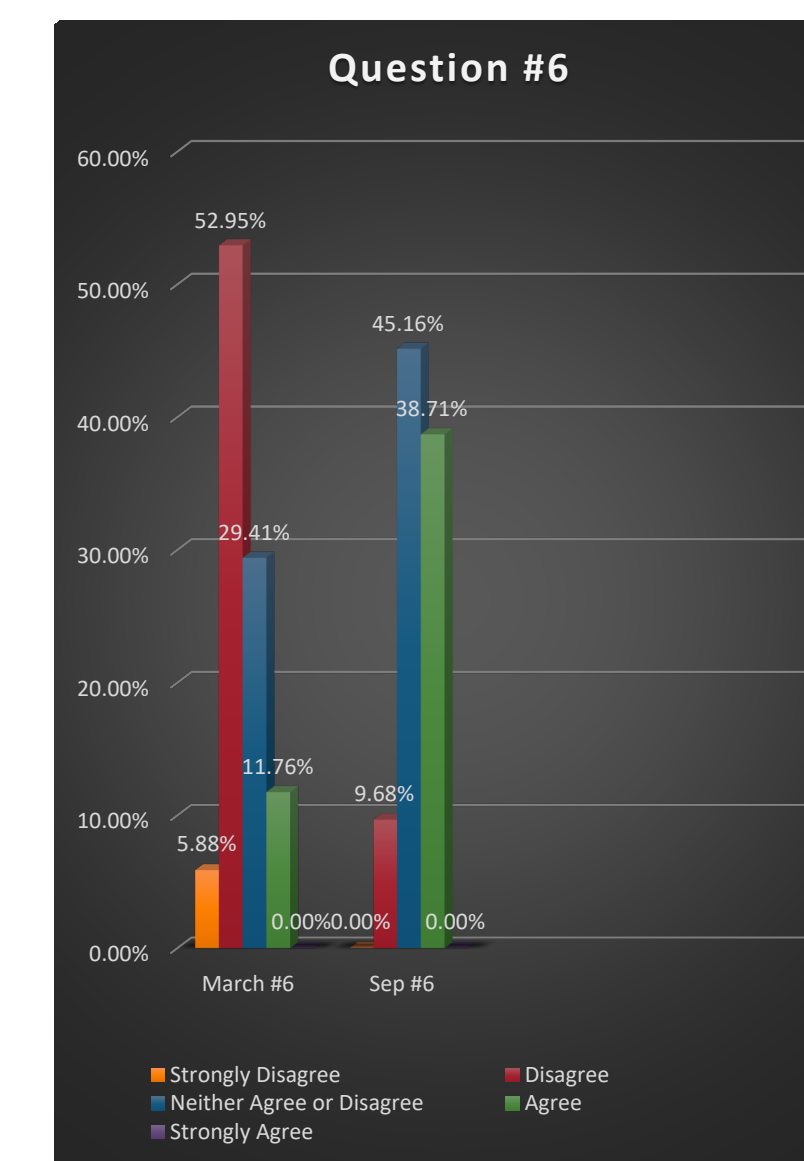
## Do

- Specific reading material, practice questions, and online supplements were compiled
- Study materials would parallel the current topic in the didactic lecture series (an 18 month curriculum).
- Prior to sending out the first self-study curriculum, the Dundee Reliable Educational Environment Measure 12 question short form (DREEM-12) was disseminated to objectively measure the baseline learning environment.
  - The DREEM-12 is a validated, reliable tool to measure the learning environment.
  - It was sent in March 2020 and again in September 2020
  - Specifically, questions #6, 8, and 9 were looked at as they best pertained to a self-study curriculum rather than the curriculum/lectures as a whole.
- Other long-term objective measures of the curriculum will include
  - SAE scores
  - Pass rates for ABPMR Part I and II
  - ACGME Resident Survey results.
- Subjective measures will include
  - Discussions during the quarterly Program Director – Resident meetings
  - Feedback during bi-annual program director assessments with individual residents
  - Feedback from monthly chief residents – resident meetings
  - Annual Resident Round Table discussion
  - Discussion during annual departmental education retreat

## DREEM-12 (adapted)

1. The resident lecture series/curriculum helps to develop my confidence
2. The lecturers are knowledgeable
3. I feel I am being well prepared for my profession in PM&R
4. I am able to concentrate well during lectures
5. There is a good support system for residents who get stressed
6. The resident lecture series/curriculum encourages me to be an active learner
7. The course organizers have good communication skills with residents
8. My problem solving skills are being well developed here
9. The atmosphere motivates me as a learner
10. My social life is good
11. The lecturers give clear examples
12. Much of what I have to learn seems relevant to a career in PM&R

## Study



## Study

### Question #6

- March results showed **59% disagreeing or strongly disagreeing** that the current resident lecture series/curriculum encourages them to be an active learner. **12% responded as agree**, and no one strongly agreed.
- In September, only **10% responded negatively** (disagree, strongly disagree) and **45% responded in either agree or strongly agree**

### Question #8

- March results were **41% responding negatively** to the question of whether their problem solving skills are being well developed. **47% responded in agree**.
- In September, **no resident responded negatively** and **62% responded positively** (agree, strongly agree)

### Question #9

- In March, results were **41% responding as disagree** (no one responded strongly disagreed) to the question of whether the atmosphere motivates me as a learner. **26% responded as agree**.
- The results in September had **6% responding in disagree** and **52% responding positively**.

## Act

### Barriers

- While faculty that specialize in the various areas of the curriculum were asked to assist with the self-study curriculum (readings, questions, etc.), there was variability in the effort some faculty was able to provide.
- Residents were more willing to complete the DREEM-12 in March than in September. The survey tool had to remain open for a longer period of time in September (with multiple reminders) in order to obtain a comparable response rate. Additionally, data in March was collected at the beginning of the COVID-19 pandemic and at the beginning of a new, work-from home COVID schedule. The changes and variations to the residents’ daily routine may have influenced how they responded.
- Utilizing the self-study curriculum is not mandatory. So if the residents are not using it, there may be minimal to no change in the DREEM-12.

### Next Steps

- Continue to create the self-study curriculum by working ahead on topics while also revising previous topics accordingly. Determine the optimal timing to send out self-study curriculum within the didactic lecture schedule. Early in the process it was emailed weekly as we did not have the material to send out ahead of time. Eventually, we were able to work ahead and send it at the beginning of the topic block. However, for longer blocks (e.g. Musculoskeletal or Brain Injury), sending the self-study curriculum in one large block may be overwhelming. Rather emailing it in sections may be more effective.
- Continue to measure the educational environment using the DREEM-12 in addition to the other objective and subjective data.

### Acknowledgements

Thank you to my internal mentor, Dr. Didem Inanoglu, and my external mentor, Dr. Susan Garstang.  
A huge thank you to the 2020 Academic Chief Resident, Dr. Lauren Fulks, and Dr. Reed Williams. I may have laid the foundation to this project, but they actually built the skyscraper.



## Background

Occupational burnout has been extensively observed and studied, and a widely-accepted burnout assessment instrument is the Maslach Burnout Inventory (MBI), which measures three dimensions of burnout: emotional exhaustion, depersonalization, and personal accomplishment.

In the recent past years, Emory's GME has reported residency burnout rates amongst all specialties, and PM&R has been among the highest (#5) on self-reported burnout, utilizing the MBI.

Studies suggest that with resilience and emotional intelligence training, individuals become better leaders who are better equipped to work with others and deal with difficult situations. I anticipate this will not only help our residents become more resilient/less likely to burn out, but also help them develop into better physicians and leaders.

## Objective

To integrate resilience and emotional intelligence training into a 2-month PGY-2 SCI rotation curriculum in order to foster/provide training to help residents become more resilient and improve residents' ability to respond to challenging situations that they may face in training and beyond as an attending.

## Methods

Integration of emotional intelligence and resilience training into an SCI PM&R Rotation Curriculum was achieved by:

1. Administration of MBI at the beginning and end of the 2-month SCI rotation
2. Integration of one article on emotional intelligence in the required reading for week 1 of the 8-week SCI rotation curriculum
3. Integration of one article on resilience in the required reading for week 2 of the 8-week SCI rotation curriculum
4. Discussion of concepts introduced in each article with the resident as part of weekly didactic curriculum
5. Utilize relevant team and/or patient encounters/scenarios as opportunities to further discuss resilience/emotional intelligence.
6. Discuss challenging scenarios and role-playing as needed.

## Results

- 3 PGY-2 PM&R residents completed pre-training and post-training survey
- 3/3 residents completed both readings and discussion based didactic session on emotional intelligence and resilience
- 3/3 residents self-reported decreased emotional exhaustion (EE) and feeling depersonalization (DP) and increased feeling of personal accomplishment (PA) on post-training survey when compared to pre-training survey
- All assessments (EE, DP, and PA) for the residents were within the normative mean +/- 1 SD except for one resident's pre-training personal accomplishment score. That resident's post training personal accomplishment score was within the normative mean +/- 1 SD.
- 3/3 residents All assessments (EE, DP, and PA) demonstrated improvement (less degree of burnout) post-training compared to pre-training.

Example of MBI-HSS assessment form given to residents

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Please answer the following questions using this scale:

How Often?	0	1	2	3	4	5	6
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

#	Question	Answer
1	I feel emotionally drained from my work.	
2	I feel used up at the end of the workday.	
3	I feel fatigued when I get up in the morning and have to face another day on the job.	
4	I can easily understand how my recipients feel about things.	
5	I feel I deal with some recipients as if they were impersonal objects.	
6	Working with people all day is really a strain for me.	
7	I deal very effectively with the problems of my recipients.	
8	I feel burned out from my work.	
9	I feel I'm positively influencing other people's lives through my work.	
10	I've become more cynical toward people since I took this job.	
11	I'm sorry that this job is hardening me emotionally.	
12	I feel very energetic.	
13	I feel frustrated by my job.	
14	I feel I'm working too hard on my job.	
15	I don't really care what happens to some recipients.	
16	Working with people directly puts too much stress on me.	
17	I can easily create a relaxed atmosphere with my recipients.	
18	I feel embarrassed after working closely with my recipients.	
19	I have accomplished many worthwhile things in this job.	
20	I feel like "no" at the end of my rope.	
21	In my work, I deal with emotional problems very calmly.	
22	I feel recipients blame me for some of their problems.	

Means and Standard Deviations for the MBI-HSS Scales

Occupational Subgroups <sup>a</sup>	MBI-HSS Scales		Personal Accomplishment
	Emotional Exhaustion	Depersonalization	
Medicine (n=1,156)	22.19	7.12	36.55
M	8.53	5.22	7.34
SD			

Note: Scale scores were calculated using Method 1 (SUM).



## Discussion

Studies suggest that with resilience and emotional intelligence training, individuals become better leaders who are better equipped to work with others and deal with difficult situations. The Maslach Burnout Inventory (MBI) is recognized as the leading measure of burnout, and new versions have gradually been developed to fit different groups and settings. The MBI Human Services Survey (MBI-HSS) is the original and most widely used version of the MBI, designed for professionals in the human services (nurses, physicians, health aides, social workers, counselors, therapists, etc.). The 22 item MBI-HSS assesses three core aspects of the burnout syndrome: emotional exhaustion, depersonalization, and lack of personal accomplishment. The emotional exhaustion (EE) scale assesses feelings of being emotionally overextended and exhausted by one's work, with higher scores correspond to greater experienced burnout. The depersonalization (DP) scale measures and unfeeling and impersonal response toward recipients of one's service, care, treatment, or instruction, with higher scores corresponding to greater degrees of experienced burnout. The personal accomplishment (PA) scale assesses feelings of competence and successful achievement in one's work with people, with lower scores corresponding to greater experienced burnout.

## Conclusions

- 3/3 Residents demonstrated improvements in emotional exhaustion, depersonalization, and personal accomplishment scales (corresponding to less experienced burnout) with targeted readings and discussion based didactics during a 2 month SCI PM&R rotation.
- Feedback from the residents (3/3) have all been positive regarding the readings and the discussion based didactic sessions.
- My plan is to continue doing this with all the residents that rotate with me.

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4. C Maslach, S Jackson, M Leiter. Maslach Burnout Inventory Manual, Fourth Edition





# Women in Physical Medicine & Rehabilitation Mentoring Program

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*Internal Mentor: Vu Nguyen, MD*  
*External Mentor: Sara Cuccurillo, MD*

## Introduction

### Background:

Women in medicine report many gender specific barriers to their career success, development, and satisfaction, including lack of mentorship and role models. Although limited in number, previous studies involvement mentorship programs for women in medicine have demonstrated that mentoring can improve aspects of job-related well-being, self-esteem, self-efficacy, and positive perceived value in both personal and professional development

## Objectives

### Goal:

Develop a mentorship program for the female residents within the Carolinas Physical Medicine and Rehabilitation Department Residency Program that fosters a supportive environment for personal and professional development, while initiating and cultivating mentoring relationships

### Desired Outcomes:

1. Create a formal mentorship program between female faculty and female residents that:
  - a. Provides female faculty mentors and role models for inspiration and guidance
  - b. Offers career advice and support in establishing goals and recognizing opportunities.
  - c. Provides emotional support, facilitate insight, and offer paths to sustain personal enrichment
  - d. Address the challenges of gender bias and perceived barriers to success in academic medicine and clinical practice
  - e. Encourage participation in networking
  - f. Encourage collaboration in scholarly activities
2. Helping current residency program and department increase and maintain gender diversity

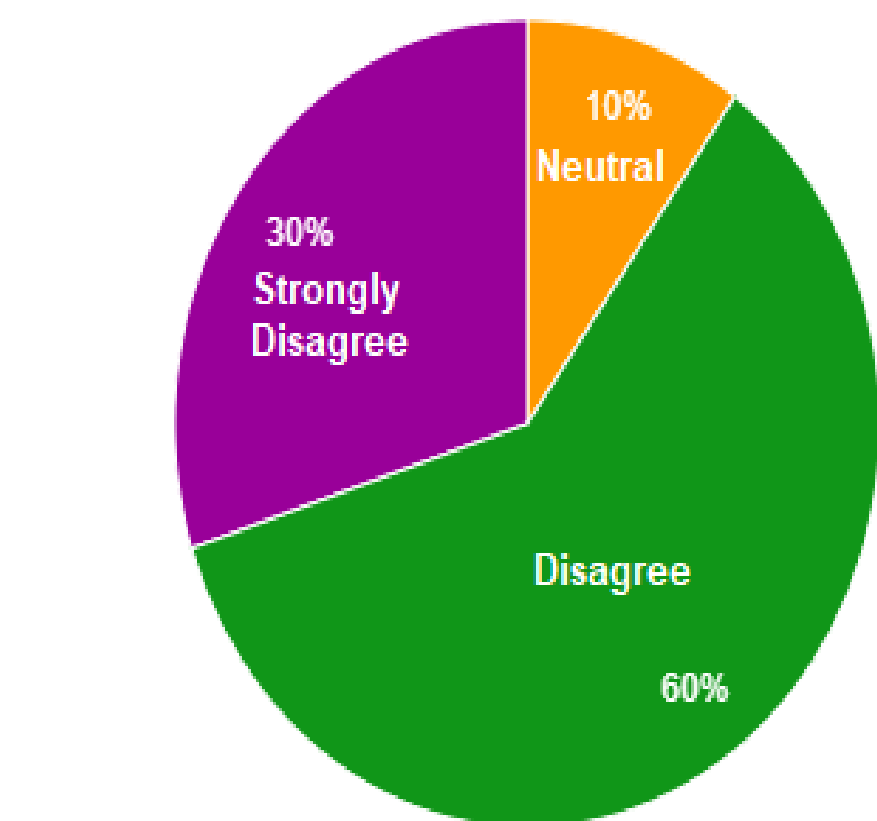
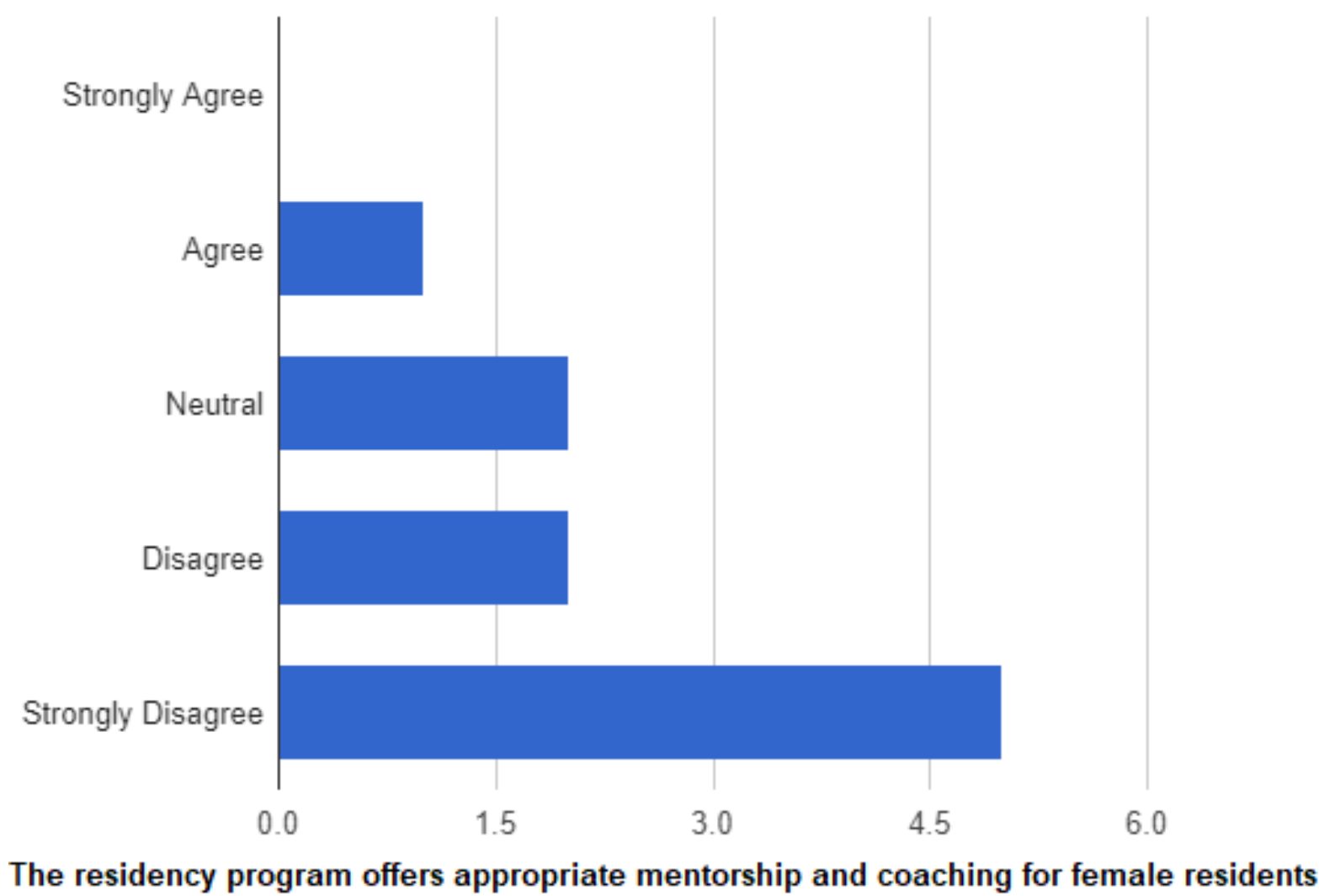
## Data Collection

### Method:

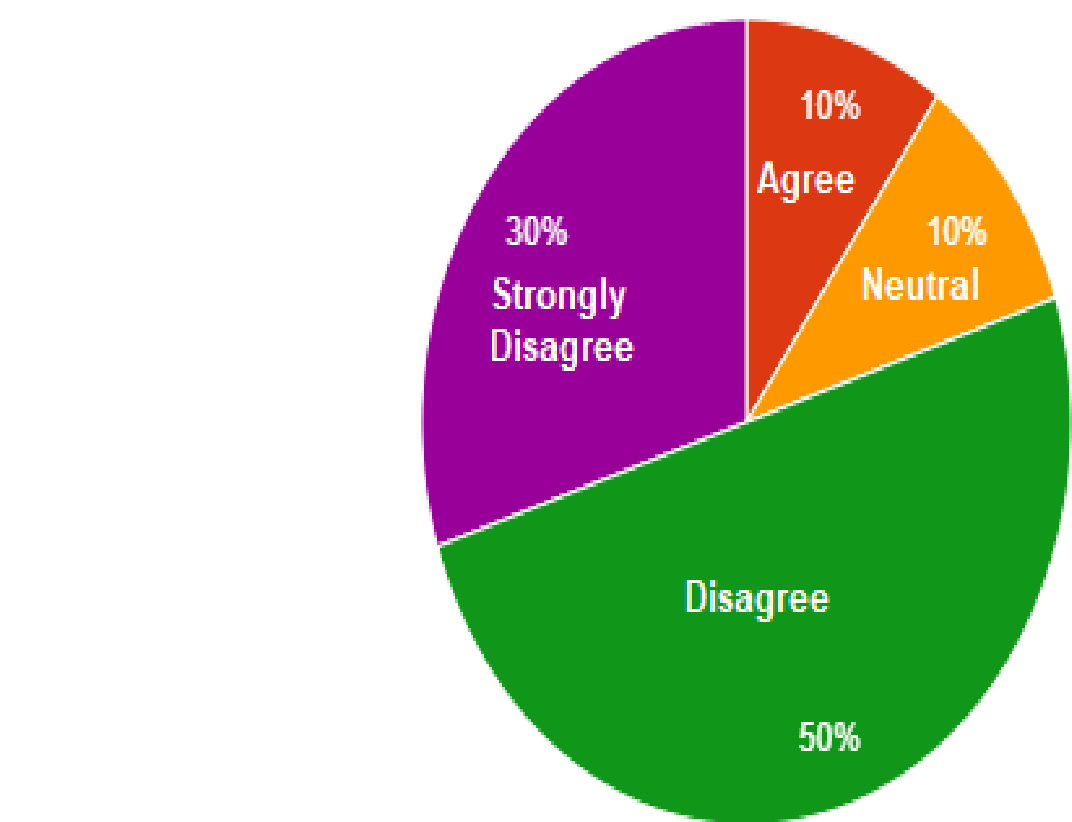
An anonymous electronic survey will be sent to the female resident and faculty participants prior to the initiation of the program and at 12 and 24 months after initiation to assess the perceived value and benefits of the program

## Results

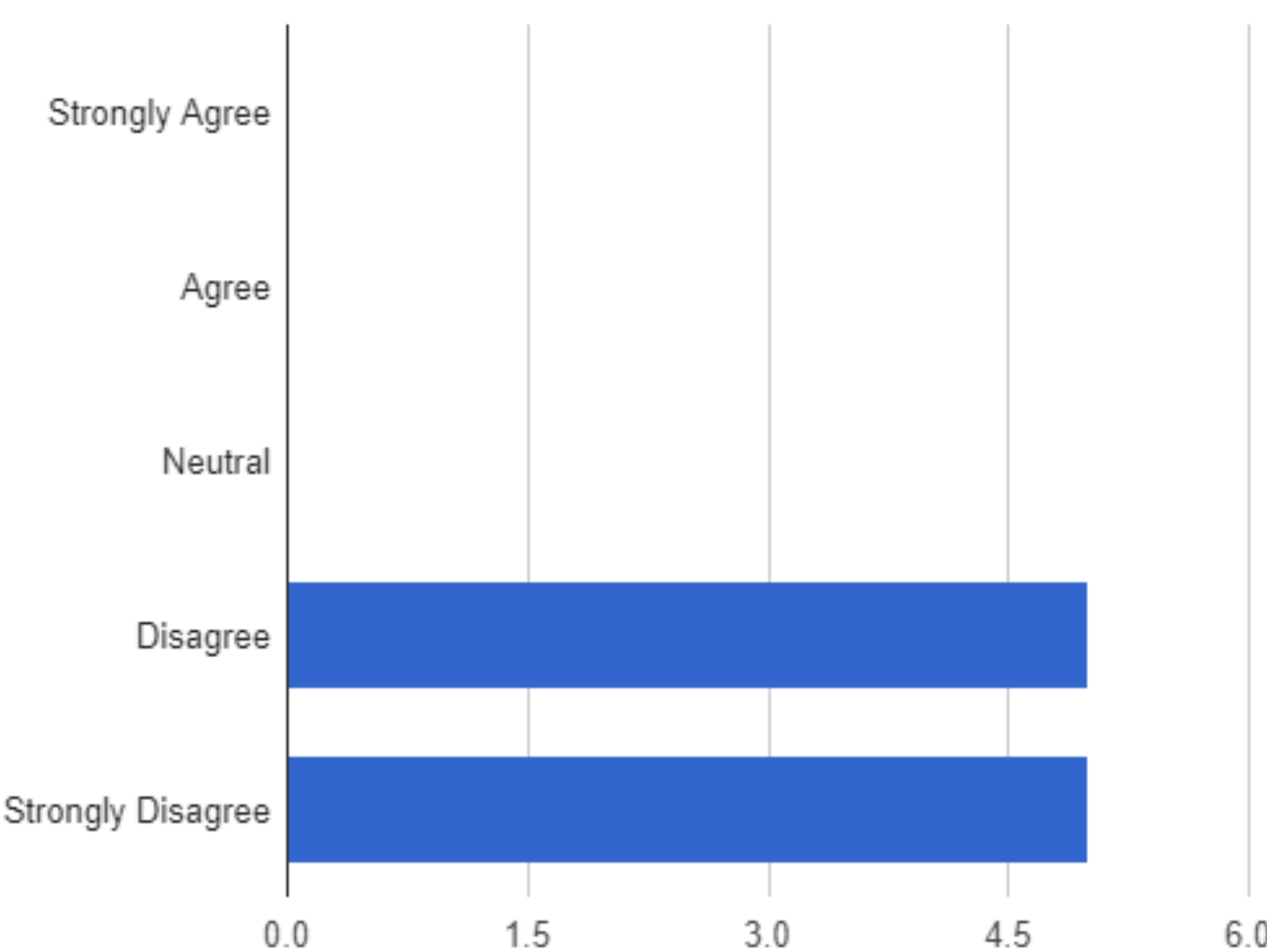
- 10 out of 12 current and former female residents completed the survey
- **10%** of the female residents feel the program offers appropriate mentorship and coaching
- **10%** of the female residents feel the program adequately addresses professional aspects of development for female residents
- 20% of the female residents feel the program adequately addresses personal aspects of development for female residents
- 40% of the female residents feel the program adequately addresses educational aspects of development for female residents.
- **10%** of the female residents feel the program provides support in establishing career goals for female residents
- **10%** of the female residents feel the program provides support in recognizing educational and professional opportunities available to female residents
- **10%** of the female residents feel the program is free from gender bias
- **0% of the female residents feel the program appropriately addresses gender bias**
- **0% of the female residents feel the program addresses the challenges and perceived barriers to success in academic medicine for female residents**
- **0% of the female residents feel the program appropriately addresses the educational and professional concerns of female residents**
- **0% of the female residents feel the program appropriately addresses the personal concerns of the female residents.**
- 30% of the female residents feel the program provides emotional support for female residents
- **10%** of the female residents feel the program encourages and facilitates local and national networking opportunities for female residents.
- 30% of the female residents feel the program encourages and facilitates collaboration in scholarly activities for female residents.
- **10%** of the female residents feel the program was overall addressing personal, educational, and professional concerns and provided a positive, supportive, and inclusive environment for female residents.



The residency program appropriately addresses gender bias



Overall, the residency program addresses personal, educational, and professional concerns and provides a positive, supportive, and inclusive environment for female residents.



The residency program addresses the challenges and perceived barriers to success in academic medicine for female residents

## Discussion

### Conclusions:

This was the initial effort to evaluate the level of need for a female mentorship program within the Physical Medicine and Rehabilitation residency program at Carolinas Rehabilitation. The results indicated that a very small percentage of female residents felt that the residency program was addressing specific professional, educational, and personal concerns.

Female residents listed several barriers that they felt they encountered within the residency program that limited their personal or academic development. Those listed included: daily microaggressions, gender bias limiting educational experience, lack of female mentorship and guidance, lack of female leadership, lack of recognition of barriers encountered by females and associated support in overcoming barriers, not feeling as valued as male residents, and lack of promoting and encouraging leadership skills.

Female residents also listed several areas of focus that they felt would be beneficial in developing a successful female mentorship program. Those areas included:

- Resiliency
- Salary and contract negotiations, Discussion of gender wage gap
- Addressing gender bias
- Personal career development
- Networking strategies
- Leadership skills and training
- Career path options: academic, fellowship, community
- How to advocate and support other female residents and physicians

### Current Status:

- We have started formalized monthly meetings with female residents and female attendings, discussing areas of concern and interest, and recognizing current barriers within program.
- Working with female residents and attendings to create a formalized mentorship and coaching curriculum incorporating guest speakers, noted areas of interest, and feedback provided in survey

### Future Steps:

- Incorporating ideas for sponsorship and extended networking
- Expanding educational topics and discussion into the residency program curriculum.

## Resources

[The Women in Emergency Medicine Mentoring Program: An Innovative Approach to Mentoring](#)

Julie L. Welch, Heather L. Jimenez, Jennifer Walthall, Sheryl E. Allen  
J Grad Med Educ. 2012 Sep; 4(3): 362-366. doi: 10.4300/JGME-D-11-00267.1

[One year outcomes of a mentoring scheme for female academics: a pilot study at the Institute of Psychiatry, King's College London](#)

Rina Dutta, Sarah L Hawkes, Elizabeth Kuipers, David Guest, Nicola T Fear, Amy C Iversen  
BMC Med Educ. 2011; 11: 13. Published online 2011 Apr 7. doi: 10.1186/1472-6920-11-13

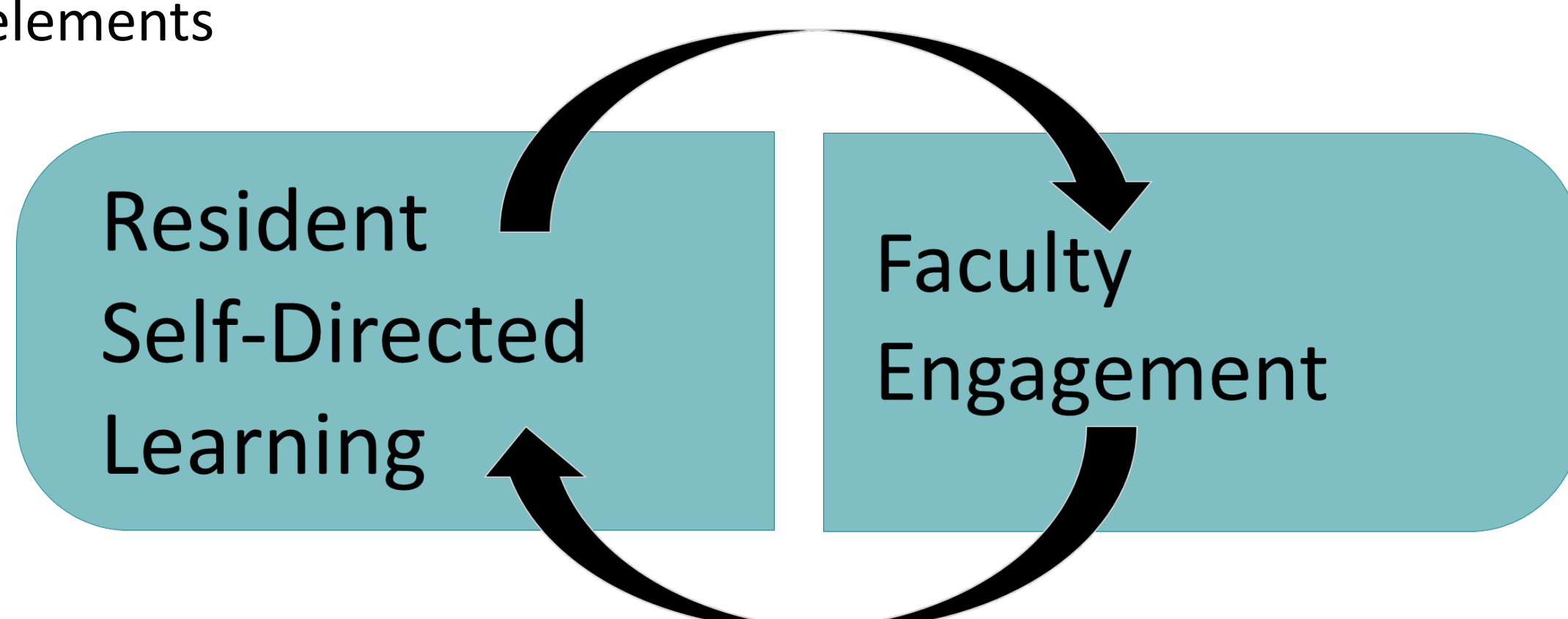




# The effect of a weekly, resident-initiated didacticism on self-directed learning and faculty engagement

## Background and Design

Faculty engagement and self-directed learning are inextricably coupled and educational programs should be designed to concurrently enhance both elements



**Objective:** The proposed project submits the implementation of a resident-initiated didacticism, with the goal to improve faculty participation in resident learning while simultaneously promoting resident inquiry and self-directed learning, with limited additional time burden.

**Methods:** All UNM-Lovelace PM&R residency rotations were required to incorporate a 30-60-minute, weekly didactic session as follows:

- At the beginning of the rotation block, principal faculty identified and set aside a consistent time for presentation(s) each week
- Residents selected a topic to present (drawn from a list of milestone-based topics)
- Residents presented their topic in a manner of their choosing
- Residents and relevant faculty were expected to attend all sessions or reschedule

### Outcome Measures:

#### Assessment of Resident Self-Directed Learning

Autonomous Learning Scale	
1. I identify my learning needs	2. I decide on the order of my learning
3. I decide on my own what to learn	4. I arrange my learning environment according to my learning
5. I use sources that support my learning	6. I find out appropriate material for my learning
7. I use various sources, when my learning isn't as desired	8. I prepare a list of my learning objectives
9. I use different methods during my learning process	10. I evaluate what and how I learn during my learning process
11. I evaluate the time of my learning	12. I evaluate my own learning
13. I evaluate to what extent I've reached my learning objectives	14. I evaluate to what extent my learning materials have supported my learning
On average over the past month, how many hours per week did you spend in:	
1. Independent study of medical texts and journals?	
2. Medical discussions with colleagues (outside of scheduled didactics)?	
3. Performing computer literature searches?	

#### Assessment of Faculty Engagement

Modified Clinical Teaching Evaluation Instrument	
1. The faculty establish a good learning environment	2. The faculty stimulate me to learn independently
3. The faculty organize time to allow for both teaching and care giving	4. The faculty clearly specify what I am expected to know and do during their rotation(s)
5. The faculty regularly ask questions that promote learning	6. The faculty incorporate research data and /or practice guidelines into teaching

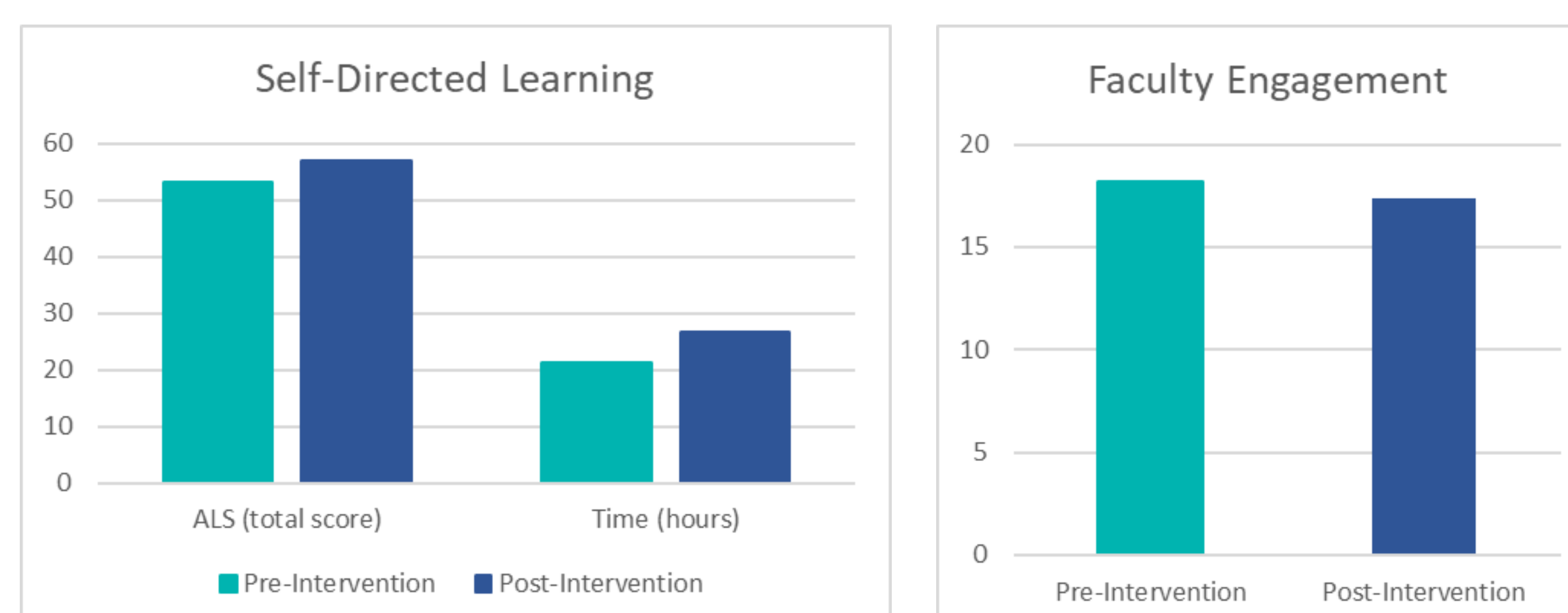
Rebecca Dutton, MD<sup>1</sup>

Internal Mentor: Gehron Treme, MD<sup>1</sup> External Mentor: Monica Verduzco-Gutierrez, MD<sup>2</sup>

## Results

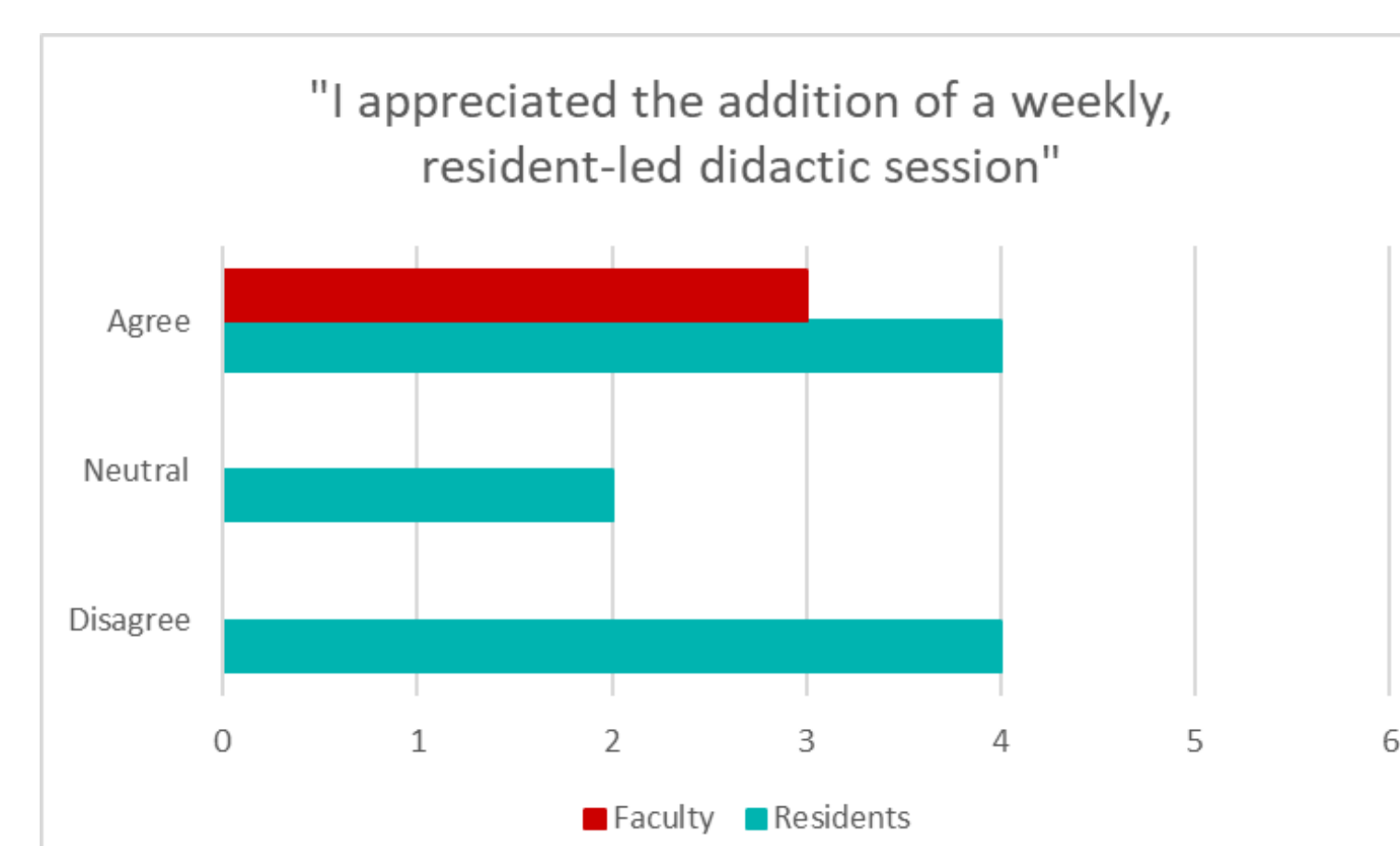
### Resident-Perceived Self-Directed Learning and Faculty Engagement

- Self-directed learning scores (as measured by the Autonomous Learning Scale (ALS)) and time spent engaging in scholarly pursuits (independent study, medical discussions with colleagues, and literature searches) increased following implementation of the resident-led didactic sessions.
- Perceptions of faculty engagement did not change pre- and post-intervention



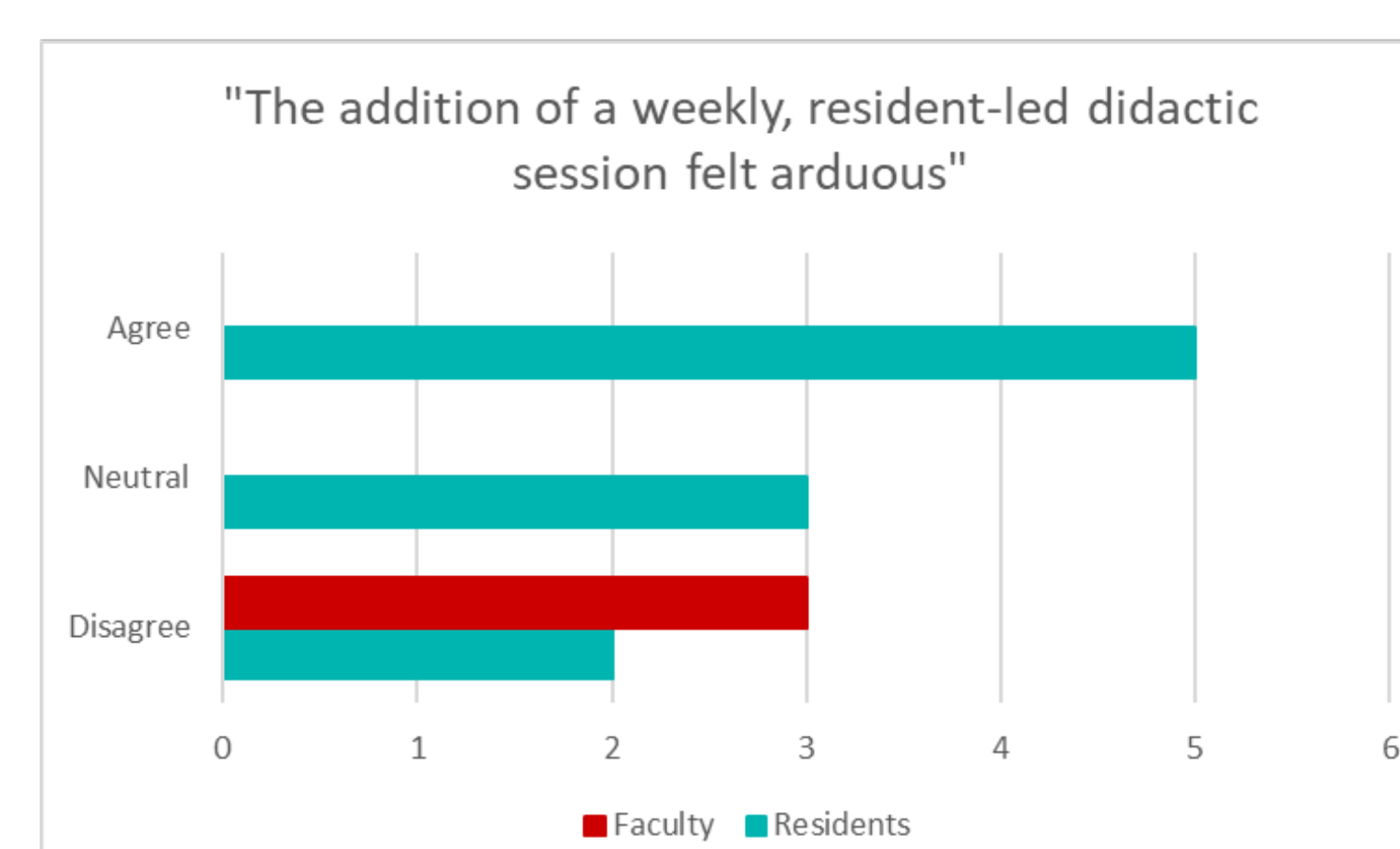
### Overall Satisfaction:

- All faculty respondents (n=3) indicated strong satisfaction with the sessions.
- Residents were divided regarding satisfaction: 40% appreciated the sessions, while another 40% did not.



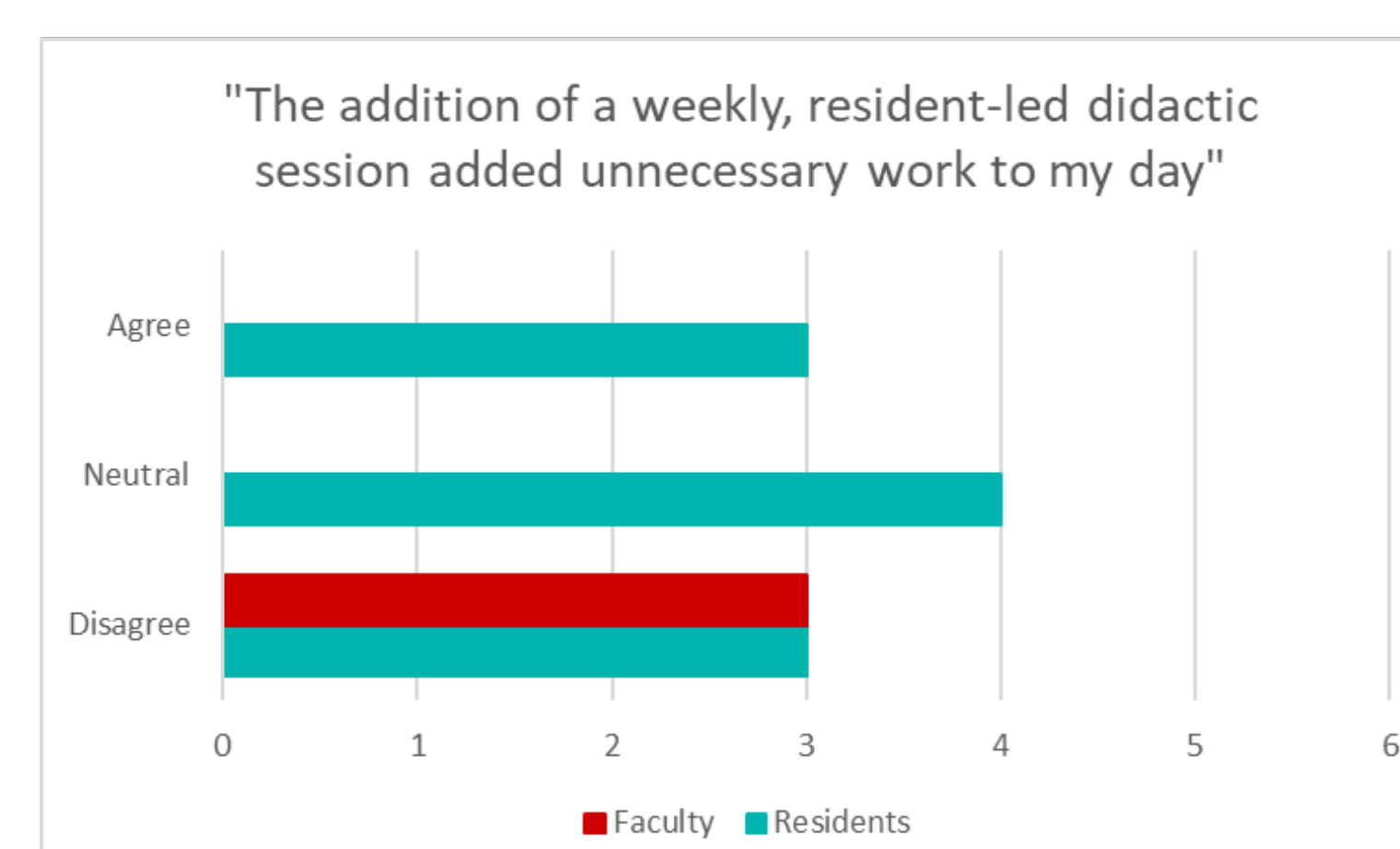
### Time Commitment:

- No faculty respondents found the sessions to be arduous or disruptive
- Resident feedback was mixed with regards to time burden. Half of the residents found the sessions to "arduous" while another 30% felt they added "unnecessary" work.

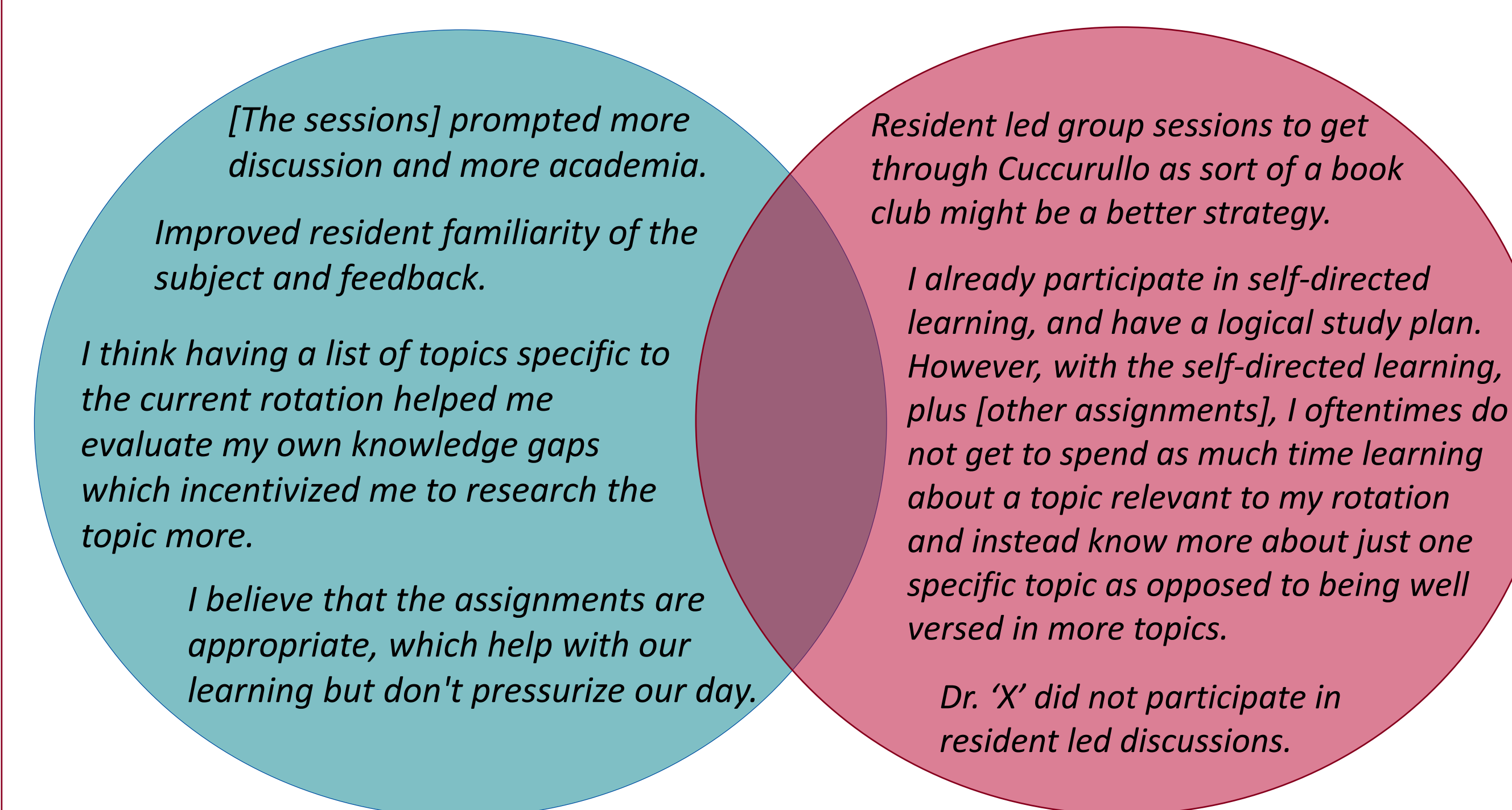


### Other Findings:

- 5 residents reported 100% compliance with the sessions.
- 3 residents reported less than 50% compliance, missing 6-8 sessions during the 10-week study period. Data trends did not change significantly when these residents were excluded from analysis.



## Feedback



## Conclusion and Future Directions

The implementation of a weekly, resident-initiated didacticism may improve resident self-directed learning.

Nonetheless, the sessions did not significantly impact resident perceptions of faculty engagement.

The sessions were generally perceived as a valuable addition by faculty, and were not felt to impose a significant time burden.

However, resident satisfaction with the sessions was more variable.

### Future Directions

The UNM-Lovelace PM&R Residency Program intends to more regularly incorporate resident-initiated learning sessions during core rotations. Future considerations should include:

- Policies to improve faculty and resident compliance with such sessions
- Alternative approaches to enhance overall resident satisfaction as well as resident perceptions of faculty engagement

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# Optimization of PM&R Residency Interviews During COVID Pandemic

**Karin Goodfriend MD<sup>1</sup>, Chris White MD<sup>1</sup>**

**External Mentor: Eric Wisotzky MD<sup>2</sup>**

**Internal Mentors: Nicholas Ketchum MD<sup>1</sup>**

1. Department of Physical Medicine & Rehabilitation, Medical College of Wisconsin, Milwaukee, WI, 2 Department of Physical Medicine and Rehabilitation, Georgetown University School of Medicine, Washington, DC

## Plan:

In the setting of the COVID pandemic, the 2020 recruitment season will be like no other. The ACGME mandate to transition to virtual interviews will impact residency programs throughout the country. The MCW PM&R department saw this as an opportunity to review or recruitment plan to maximize the faculty and candidate experience.

## Act:

- **Determine faculty level of comfort and identify faculty concerns regarding 2020 virtual recruitment**
  - Developed and administer pre-recruitment survey to all faculty
- **Establish group of core recruitment faculty**
  - Assess faculty interest and experience
- **Update candidate screening/ interview process**
  - Review literature regarding interview best practices
  - Faculty education regarding: technical aspects of zoom, candidate review process, diversity, anti-bias training, structured behavioral questions.

## Pre-recruitment survey results: (n=25)

- **90% had concerns about virtual interviews**
  - Concerns regarding ability to provide a personal interaction with MCW residency and faculty
  - Concern about ability to develop a connect with candidates
- **>75% felt virtual interviews would NOT change how they prepare for interviews**
- **>80% felt virtual interviews would NOT change how they rank candidates.**

### Perceived Benefits of Virtual Interviewing

- Increased scheduling of interviews
- Ability to off more interview days/slots
- Decreased cost to candidate

### Perceived Negatives of Virtual Interviewing

- Decreased personal connection
- Technology Issues
- Candidates will not get to see facility/town
- Candidate to not get to meet residents.

## 2020 recruitment plan

- Candidate application evaluation.
  - Team determined areas of importance: Journey, work with URM, PM&R rotation experience/performance, teamwork, and LORs
  - Faculty Champion throughout process (review/interview)
- Resident run “social” the night before, small group breakout rooms
- Structured behavioral STAR format interview questions

## Study:

- Pre/Post survey of 2020 recruitment season
- Match full resident class on March 15<sup>th</sup>.
- Review applicant data (gender, region, MD/DO, URM)

## Act:

- Increased comfort level with virtual interview process
- Develop 2020 recruitment process

## Next Steps:

- 1) **Distribute post interview season survey to Faculty.**
- 2) **Compare applicant data (gender, medical school region, MD/DO, URM from 2019 to 2020.**
- 3) **Based on results plan for changes for 2021 recruitment process.**



# Improving Medical Education through High Yield Faculty Development Modules

Kimberly Hartman, MD, MHPE (Children's Mercy Kansas City; University of Kansas Health System)

Internal Mentor: Sarah Eickmeyer, MD; External Mentor: Loren Davidson, MD

## Background

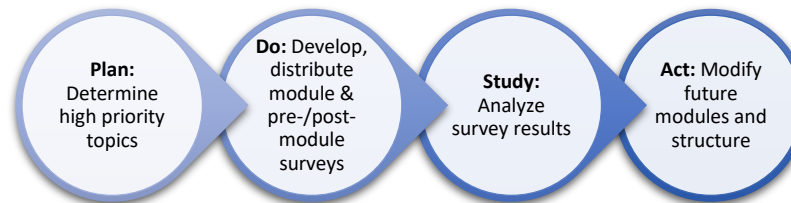
- Children's Mercy Kansas City has an ACGME-accredited Pediatric Rehabilitation Medicine (PRM) fellowship program.
- ACGME requires faculty participation in faculty development or academic activities as part of the PRM Fellowship Program Requirements.
- Faculty development is an important part of career advancement, personal growth, and programmatic improvement yet participation by PRM faculty has been limited.
- PRM faculty cite time and specificity as factors limiting participation.

## Objectives

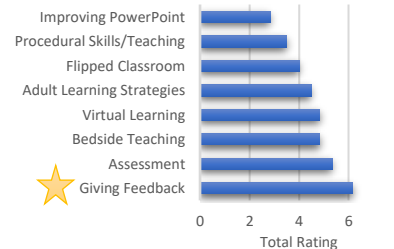
- Develop concise, on-demand faculty development modules related to medical education
- Prioritize topics to maximize participation
- Analyze feasibility, perceived benefit, and knowledge acquisition

**Hypothesis:** If PRM faculty are provided with shorter, high-yield, relevant modules, faculty participation, satisfaction, and knowledge will increase.

## Design



## Results



**Medical Education Topics:**  
Survey results from PRM faculty (n = 6) on desired topics.

*Highest priority topic: "Giving Feedback"*

**Module:** Interactive, self-paced utilizing primarily Articulate Rise 360® and PowToon®



**Participation:** 5/6 faculty (83.3%)  
**Completion time:** 22.4 minutes (range 20-27 minutes)

**Was the activity beneficial to your development as a medical educator?**  
Strongly agree (40%), Agree (60%)

## Results (continued)

Metric	Pre-Module (mean)	Post-Module (mean)
How comfortable are you with giving feedback? (1-10, 1 = least)	5.4	7.4
How satisfied with your ability to give feedback? (1-10)	4.8	7.0
Quiz	80.0% ± 18%	100% ± 0%

### Comments:

- Helpful to shorten to 10 minutes, 15 minutes max
- Hard to read one quote; narration too fast

## Conclusions & Next Steps

- The activity is feasible: 83.3% participation
- The activity is beneficial: 100% of participating PRM faculty agreed or strongly agreed
- Comfort, satisfaction, and knowledge scores all increased after module completion
- Future directions:**
  - Shorten modules while preserving content
  - Distribute every 2 months
  - Continue to analyze results
  - For topics with lower scores, consider mini workshop every 6 months
  - Consider distribution to broader audience



# The Virtual Residency Interview: Development of an Efficient System that is Mutually Beneficial to the Applicant and the Program.



**Sara Huss, MD; Sophie Scherl, MD**  
**Dept of Neurology, Division of PM&R – Albany Medical College**  
Internal Mentor : Shellie Asher, MD External Mentor: Carol Vandenaeker-Albanese, MD



## BACKGROUND:

The 2020 COVID-19 crisis has proven to be an unprecedented time in medical education and the Residency Match cycle. This will be the first time all our residency candidates will interview virtually. We also realize applicants experience in PM&R is more limited than previous years due to restrictions on away rotations, making it more difficult to differentiate applicants on paper alone. A successful interview session that not only gives us a good view of the applicant, but also the applicant a good view of our educational program is vital.

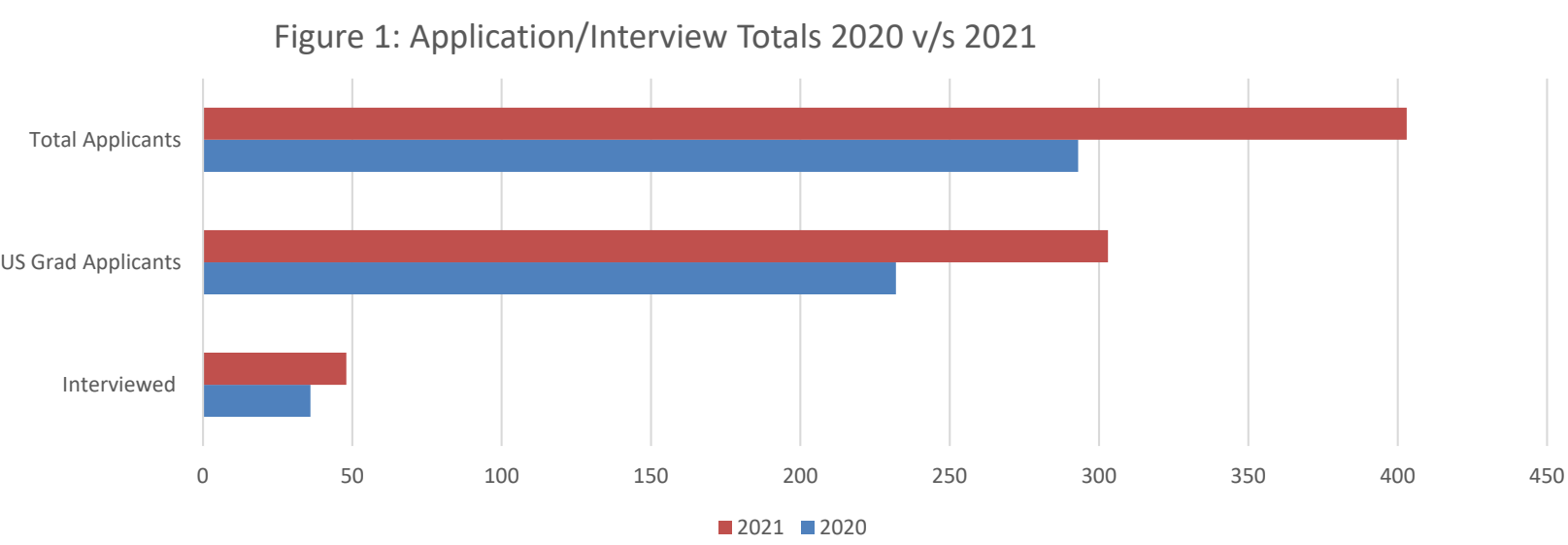
## GOAL:

- Increase number of interview slots comparatively to increased application volume while accomplishing the following:
1. Keeping the relative “interview experience” for the applicant with our program static.
  2. Keeping productivity as static as possible (average 3 days lost).
  3. Keeping departmental expenses at or below annual budgeted amount for interviews of \$6000.
  4. Ensuring quality of interview experience through surveying both current residents and interviewees.

## PRE-INTERVIEW METHODS:

- Redesigned website to include comprehensive overview of program, resident bios/interviews, pictures and quotes.
- Produced 2 video intros/tours (1 inpatient, 1 outpatient); in addition to college and regional videos provided by medical college.
- Prepared presentations, joined Instagram, attended virtual fairs.
- 303 Applications divided and screened by 3 groups (PD, APD and resident team) with 48 selected to interview. Figure 1.
- Schedules reviewed for least impact on production resulting in 48 interviews scheduled over 6 separate 4 hour sessions (8 per session).
- Sent Surveys to: current residents, invited interviewees and applicants previously interviewed virtually for our Pain Fellowship.

Positions Available:  
2



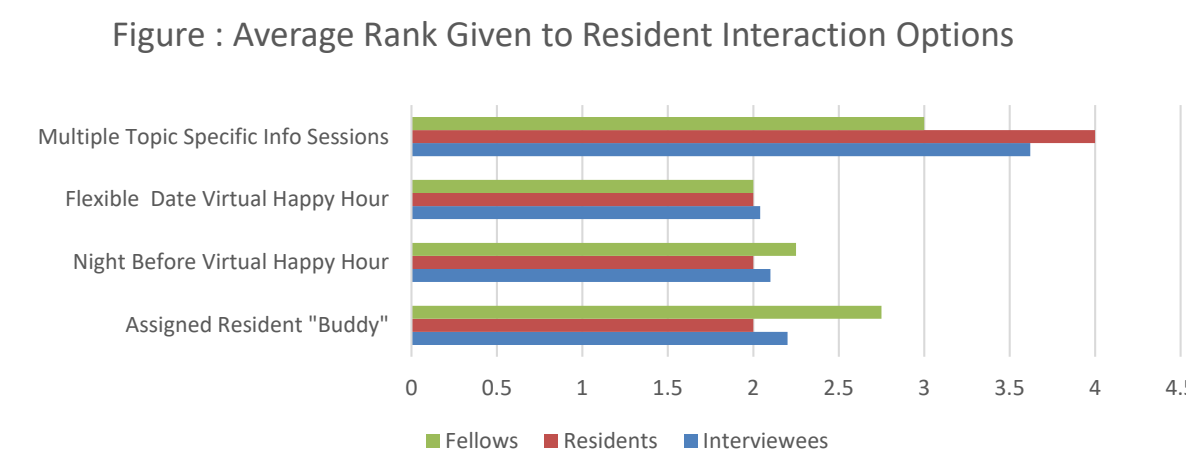
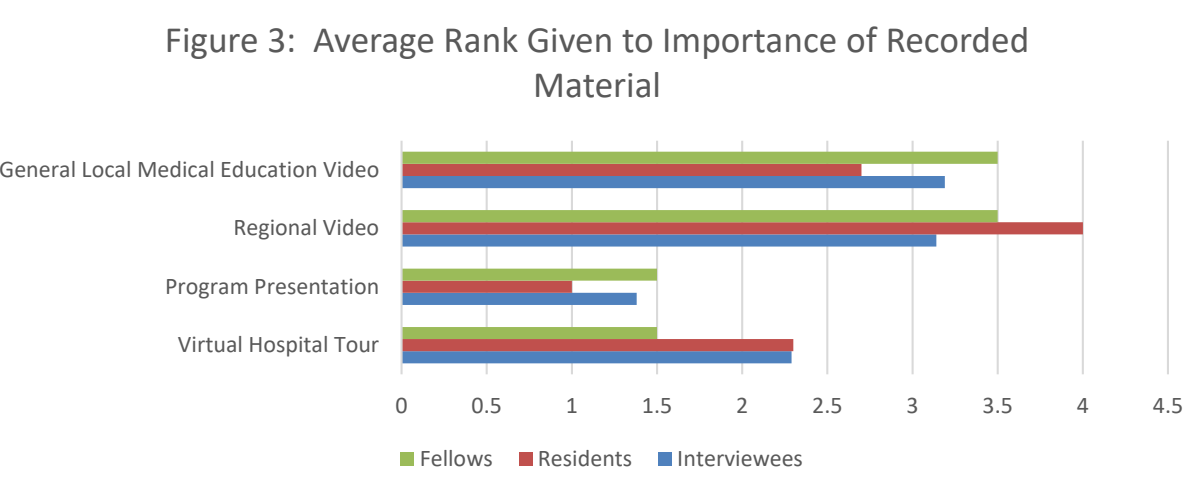
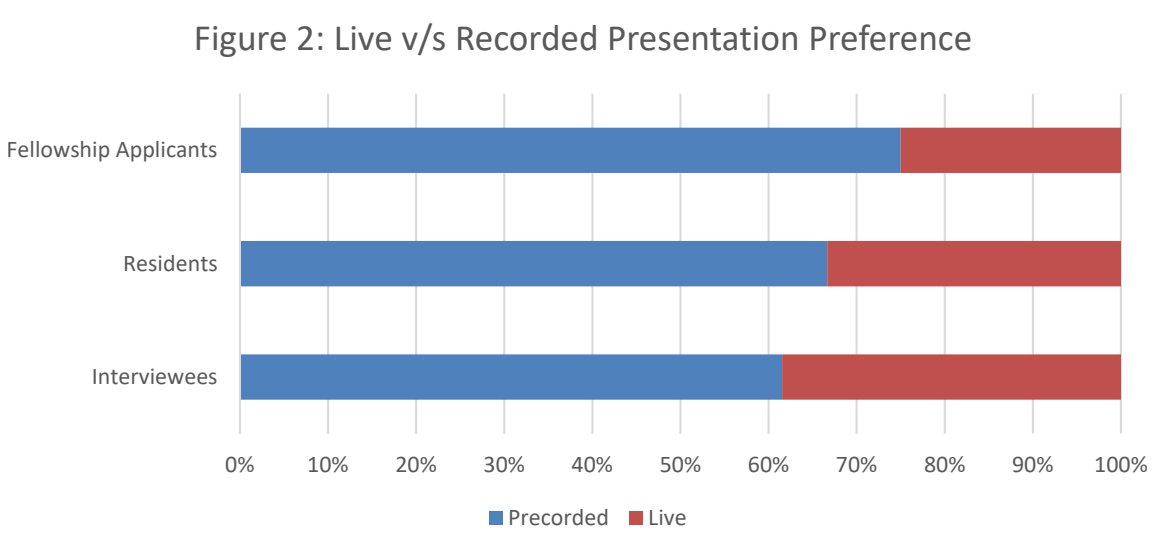
## RESULTS: PRE-INTERVIEW PLANNING

Expense: Total Cost: \$3K (↓\$3K)  
Work Days Lost: 2.5 days (↓1/2 day)

We were able to maintain cost below budget due to assistance from our institution and utilizing available resources. Our inpatient site provided a video tour done internally, free of charge to our division. Presentations were recorded on Powerpoint platform. Interviews were scheduled on Microsoft Teams (institution license). Our only expenses were for updated media/outpatient video. We were able to save ½ day of clinical time by utilizing a rare 5<sup>th</sup> Monday with all outpatient attending schedules aligned off.

### Surveys:

Surveys were sent to current residents, all applicants scheduled to interview and applicants interviewed this past year for our Pain Fellowship (to get perspective from those who have experienced the virtual interview process). All surveys were optional and anonymous. Questions related to desire for live vs. pre-recorded presentations (sent ahead), ranking of importance of content of recorded material, and ranking of optimal structure for time spent with Residents. Results helped to guide the interview experience and serve as quality control. Figures 2, 3, 4.

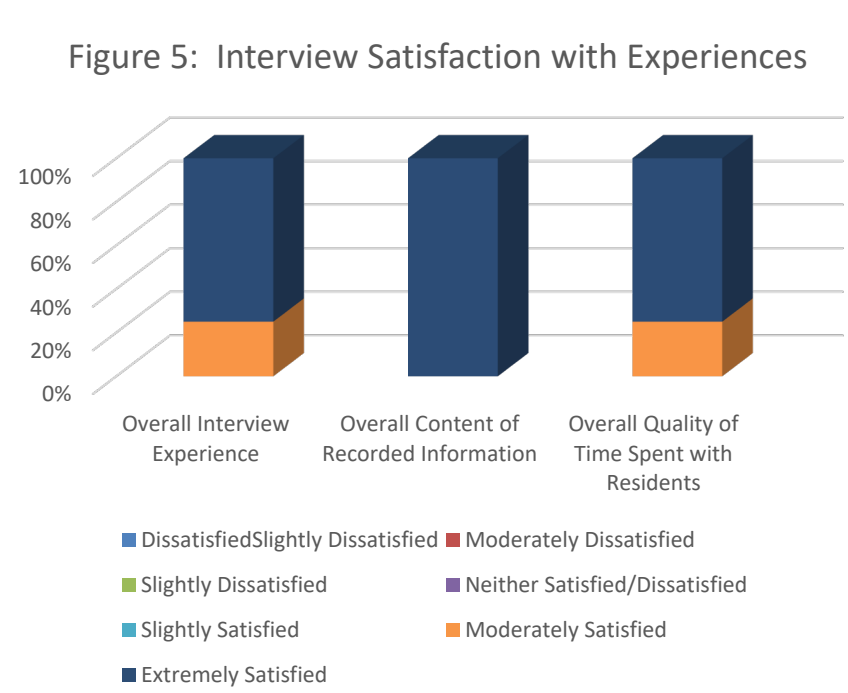


## INTERVIEW SET-UP:

- Based on the data obtained in the pre –interview surveys we have adjusted our interview day experience to encompass (compared to previous in-person experience):
- Four 20-25 minute consecutive interviews per candidate. → same as in person
  - “Virtual Happy Hour” scheduled the night before interview with option to attend on different night if more convenient. → in place of night before dinner
  - Link sent ahead of interview for access to:
    - 2 virtual tour videos (1 inpatient and 1 outpatient) → in place of live tours
    - 3 pre-recorded presentations on curriculum → previously only 1
    - Medical College video/tour → additional info, previously informal
    - Video and website link to the Capital Region → In place of quick presentation
    - Links to common housing options in area

## POST-INTERVIEW FOLLOW-UP:

Every interviewee is also given the chance to fill out an optional anonymous follow-up survey to gauge the quality of the interview experience. Questions include overall satisfaction with interview experience, quality of recorded presentations and resident interactions. The interview experience will be adjusted if needed based on results. This is ongoing to ensure quality, however results thus far are demonstrated in Figure 5.



## OUTCOMES:

- While the post interview surveys provide some preliminary data regarding the quality of our interview process, we realize feedback interviewees are willing to be provide prior to the match may be limited despite the survey being optional and anonymous. The ultimate outcomes will be truly determined by:
- Post- Match Survey (Sent Annually through GME), thus can compare to previous years.
  - Outcome of the Match – Filling our two residency positions.
  - Ultimately the performance and “fit” of matched applicants during residency.

## CONCLUSIONS:

The virtual interview process is a new and necessary process for this application cycle and may additionally be needed in upcoming years. We found this process to be a great opportunity to examine and expand our online presence. By closely evaluating our resources and the needs of the applicants, we were able to create a comprehensive virtual interview experience that was both geared towards addressing the applicants needs and saving departmental resources. The presentations, media and formats developed will likely be of benefit for years to come, whether interviews are virtual or not.



# Implementation of a Research Curriculum

Kirk Lercher MD

Department of Rehabilitation and Human Performance, Icahn School of Medicine at Mount Sinai, New York, NY

Internal Mentor: Miguel X. Escalon, MD

External Mentor: Darrel L. Kaelin, MD



## INTRODUCTION

Our department's training programs would benefit from increased exposure and comfortability with the research process. Some trainees come in with prior research experience which helps them take the initiative in seeking mentorship and putting together a project while others who have minimal research experience coming into their training unfortunately graduate from training with not much success in research other than contributions to book chapters or case report poster presentation. This has particularly been a challenge with the brain injury medicine fellowship of which I am the Program Director. Efforts have previously been made in collaboration with the spinal cord injury fellows in a joint research curriculum and pairing fellows with researchers in the hopes that this collaboration would result in mentorship and the development of a research project. Unfortunately, for various reasons there have been challenges in the realization of this in the first two years of the brain injury medicine fellowship and has had variable success with the spinal cord injury fellows. Our department has dedicated research departments that are strong in research grantsmanship and productivity and therefore the opportunity is there to form a good collaboration which should result in improving our trainee's exposure to research and ideally research productivity. The goal of this project would be to implement and operationalize a research curriculum thereby introducing our trainees to the research faculty and gain an appreciation of research process and ideally facilitate obtaining a research mentor to help improve their productivity.

## METHODS

I will work collaboratively with the other Program Directors in my department along with research faculty in the development and implementation of a research curriculum. I will engage the brain injury research department for their buy-in for the process and seek out willing mentorship for the brain injury fellow, in particular, as continued collaboration and engagement with them will be necessary to help strengthen the fellowship. There will be a heavy reliance on the research faculty to maintain their engagement in the project and us as the Program Directors will have to monitor the process with our respective trainees to ensure it is effectiveness.

Past brain injury and spinal cord injury fellows were polled regarding their feelings on their exposure to research during their fellowship and their confidence they have in their research abilities currently. Additionally, current and past Program Directors will be polled to assess what issues they may have faced in incorporating research into their programs. To help strengthen the feedback, poll results from graduating senior residents will also be included. This feedback will be incorporated into the further development and implementation of the research curriculum. Current fellows and senior residents who participated in the research curriculum will also be asked to complete a survey to assess efficacy of the curriculum which will be further modified based on feedback received.

## RESULTS

### Program Director Survey Questions

- How important is incorporating research education into your residency/fellowship training program? (Scale of 1-5)
- What are perceived barriers that you foresee to implementing a research curriculum into your residency/fellowship training program? (free text)
- How comfortable are you with explaining research theory to your trainees? (Scale of 1-5)
- What would be your goals of incorporating a research training curriculum to your residency/fellowship training program? (Multiple Choice)
  - Poster Presentation
  - Publication
  - Better Understanding of research theory
  - Proficiency as a clinician researcher
  - Other (please specify)
- What percentage of your current professional time is devoted to research? (free text)
- How much is research currently incorporated into your current practice? (answer all that are applicable)
  - I am proficient in grantsmanship
  - I am on multiple grants but have not written my own
  - I am first author or senior author on many publications
  - I have been sole or co-authored book chapters
  - I am on multiple poster presentations with trainees
  - Other (please specify)

### PAL Resident and Fellow Survey

- How important do you consider incorporating research education into your residency/fellowship training? (Scale 1-5)
- Do you feel well prepared to be incorporated into research projects after your current level of training? (Y/N)
- How confident are you currently on your level of understanding of research theory and ability to critically analyze literature? (Scale 1-5)
- What would be your goals in participating in a research education curriculum as part of your training? (Select all that apply)
  - To be able to critically analyze literature
  - To be able to understand research theory and development of a research study
  - To have productivity in the form of a publication or poster during your training
  - To learn grantsmanship
  - Other (please specify)
- Please specify if there is there anything you wish you learned at your current level of training regarding research that you plan on seeking out in the early stages of your career? (free text)
- Do you plan or anticipate incorporating research into your career practice? (Y/N)

## DISCUSSION

It is anticipated that with the development of a research curriculum for the residents and fellows in our institution will improve their engagement with research faculty during their training and help improve research productivity on the part of the trainee. Additionally, this curriculum will help foster relationships between the research and clinical faculty at Mount Sinai and hopefully promote further collaboration. Ideally this will result in more robust research projects and presentations from our trainees over time.

Unfortunately, due to disruptions in our department brought on by the COVID-19 pandemic our rollout of the research curriculum and the current assessment of its efficacy did not proceed as smoothly as intended. We are currently awaiting results of survey data and completion of the analysis of this information. Though the data is likely to be hampered by a low sample size it will hopefully provide useful information that will help inform decisions on further modifications of the research curriculum.

As a follow-up step, trainees who participated in the current research curriculum will be provided a post-completion survey regarding their experience to assess if their confidence in navigating and participating in research has been heightened by having completed the research curriculum. Data gained from this post-completion survey will be incorporated into ongoing development of the research curriculum.

## CONCLUSION

Garnering appreciation for research in psychiatry residents and fellows is of paramount importance. Whether trainees will develop into clinician researchers is not as important as inspiring their ability to critically analyze research studies and to be able to incorporate this into their careers. A dedicated research curriculum should help garner the trainees' interest and appreciation for the research process that goes into designing a study as well as further their ability to assess validity and scientific merit in studies they review that are relevant to their careers. Our field benefits from ongoing research into the interventions that we can offer as such developing psychiatrists who be active participants in these studies whether actively in the research process or clinically in analyzing the data and incorporating these measures into their practice is critically necessary.