

# Improving scholarly productivity for Physical Medicine and Rehabilitation Residents

Holly Pajor DO, Oluwole Awosika MD, Victoria Heasley MD, Brett Kissela MD



## Background

The Accreditation Council for Graduate Medical Education (ACGME) requires that each residency graduate demonstrates scholarly activity including:

- publications
- chapters/textbooks
- national or regional presentations (excluding local presentations)

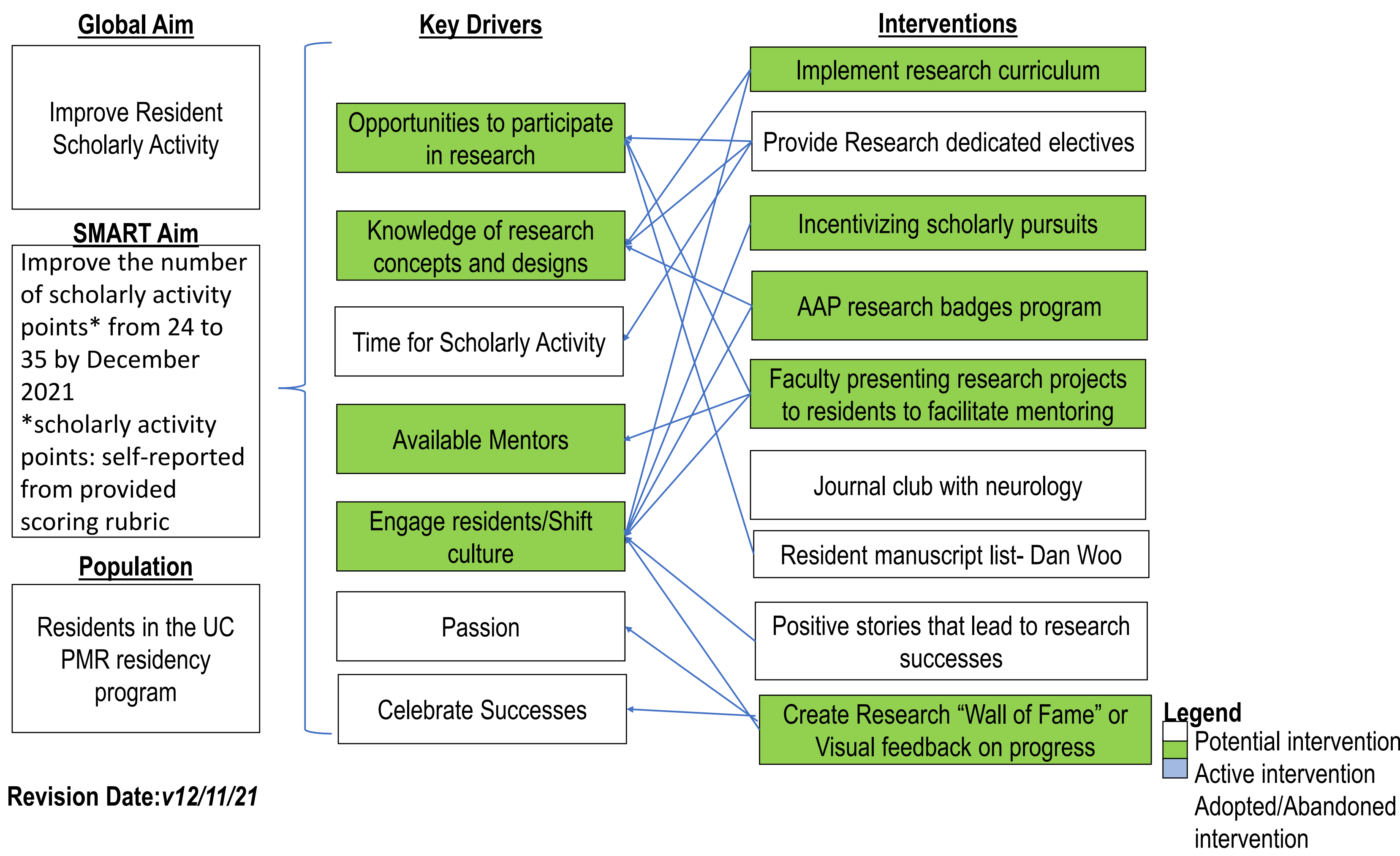
A meta-analysis published in 2018 found 32 articles describing initiatives used by GME to increase scholarly activity. No specific strategy was identified as the most helpful, but **publication rate was significantly higher after initiation of any intervention** suggesting that a culture emphasizing scholarly activity is the most important step.<sup>1</sup> **Several studies have used a point system to increase scholarly activity**<sup>2</sup> with improvement in scholarly activity after implementation.

Historically our program averaged 2 national presentations per year and 1-2 IRB approved research projects per year with 2 residents per year. Our residents attend weekly departmental grand rounds and participated in a monthly journal club.

**The overall goal of this project is to strengthen our culture of scholarship.**

**SMART Aim:** Improve the number of scholarly activity points\* from 24 to 35 by December 2021.  
*\*scholarly activity points: self-reported from provided scoring rubric below*

## Key Driver Diagram

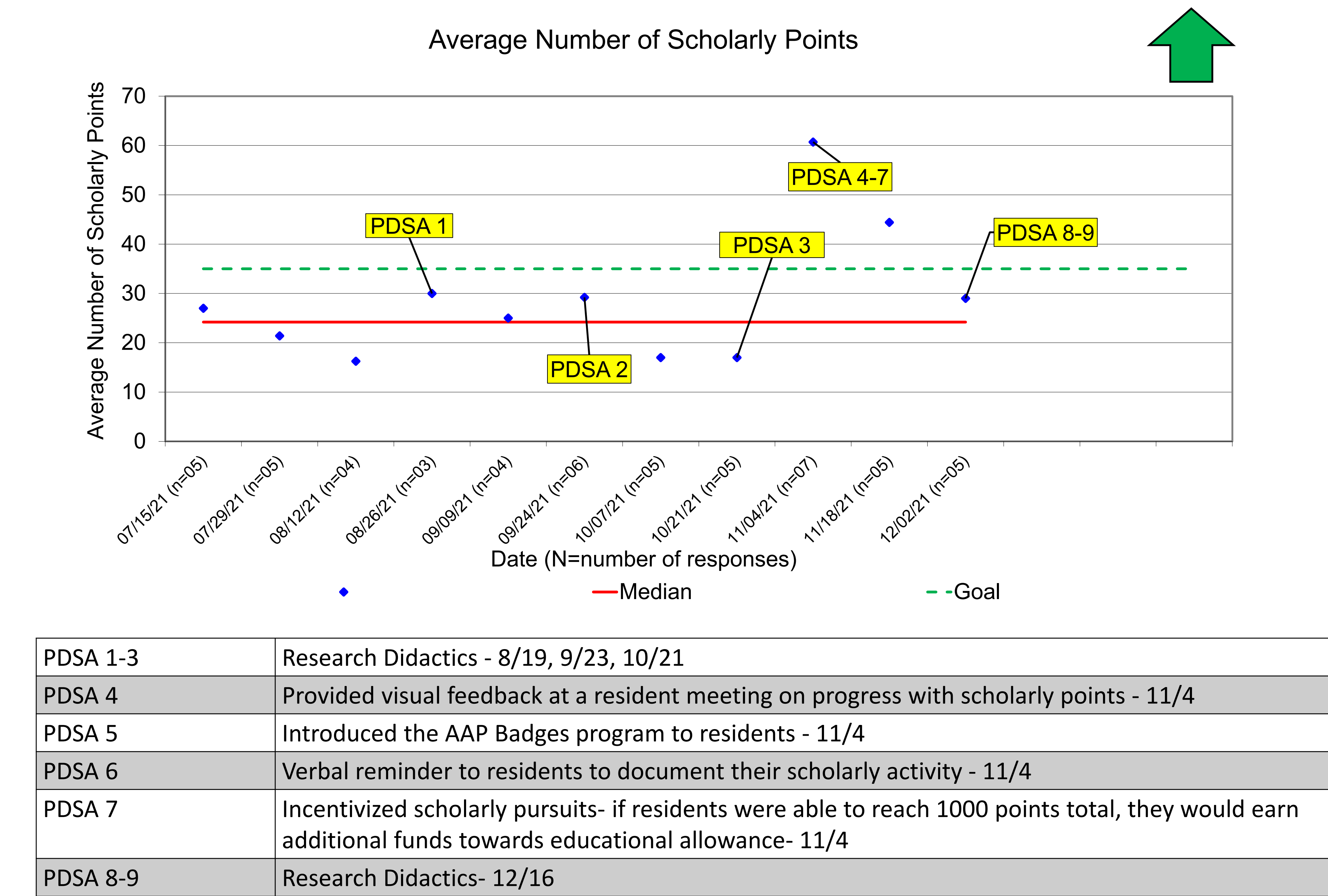


## Measurement

- We created a novel point system for scholarly activity (see table and figures).
- We embedded the scoring within REDCap and asked residents to self-report activities every 2 weeks.
- In addition to points for **Original Scientific Research** and **Case Reports/Reviews** (figures), we awarded points for other scholarly activity (table) that our team felt **strengthened our culture of scholarship**.

Other Scholarly Activity	Points
Publications for lay public (newspaper, magazine)	50
Recognition at local, regional, national conference	50
Literature review for a clinical question	10
Reference for consultation recommendations (+bonus for creating Smart Phrase)	5 (+2)
Individual QI project	40
Attending research talk	10
Preparing extra lecture or shared resources	15
Multi-disciplinary collaboration on project	20

## Results



## Discussion

Using the IHI Model for Improvement, we designed and implemented several interventions to achieve our SMART Aim. We measured a total number of scholarly activity points every 2 weeks using a novel scoring system we created. While we have not achieved a shift in our median number of scholarly activity points per 2 weeks, **our most recent data points are above the median**. If we continue this trend, we may be able to achieve our SMART Aim goal.

Many early interventions were **directed at our key driver of creating a culture shift** within the program to emphasize research and scholarship. This was based on existing literature showing improvement with multiple different interventions. Thus, we implemented a **didactic curriculum** and also **incentivized scholarly pursuits by offering additional educational funds**.

As we were also implementing a new scoring system, further intervention aimed at embedding this system (reminders to document scholarly activity) may also be contributing to our recent trend.

Pareto analysis based on type of scholarly activity revealed most activity included literature review for a clinical question (34/132 responses), attending a research talk (26/132 responses), and multidisciplinary collaboration on projects (18/132 responses). This is consistent with our theory of change—that creating a culture shift starts with the more easily achievable items. Additional time and data collection is needed to see if this culture shift will lead to the ACGME scholarly activity requirements.

- Next interventions include:
- Optimize reminders - currently reminding once every two weeks. Could possibly send 2-3 reminders around due date
  - Providing research dedicated electives
  - Highlighting research successes

## References

- Wood W, McCollum J, Kukreja P, Vetter IL, Morgan CJ, Hossein Zadeh Maleki A, Riesenber LA. Graduate medical education scholarly activities initiatives: a systematic review and meta-analysis. BMC Med Educ. 2018 Dec 22;18(1):318. doi: 10.1186/s12909-018-1407-8. PMID: 30577779; PMCID: PMC6303993.).
- Seehusen DA, Ledford CJ, Grogan S, Kim E, Johnson JJ, Stackle ME, Runser LA, Fargo MV, Keck JW, Oberhofer AL, Shoemaker R. A Point System as Catalyst to Increase Resident Scholarship: An MPCRN Study. Fam Med. 2017;49(3):222-224.)
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# Utilizing Social Media Marketing to Improve Medical Student PM&R Research Engagement



Jared Placeway, DO; Antonio Casco MS4

MetroHealth Medical Center; Case Western Reserve University School of Medicine, Cleveland, Ohio

Internal Mentor: Chong Kim, MD (MetroHealth/CWRU)

External Mentor: Alex Moroz, MD, MHPE (NYU Langone Health)



## Introduction

- Despite significant department research presence, there has been a dearth of CWRU students involved in PM&R research in the recent past.
- No consistent, organized approaches have been undertaken to market opportunities to early year medical students.
- Social Media presence for PM&R departments and residency programs has grown vastly over recent years and can be a powerful tool for medical student recruitment and information dispersion.
- An opportunity exists to include social media in the process to improve medical student research interest and awareness of PM&R early in their career.

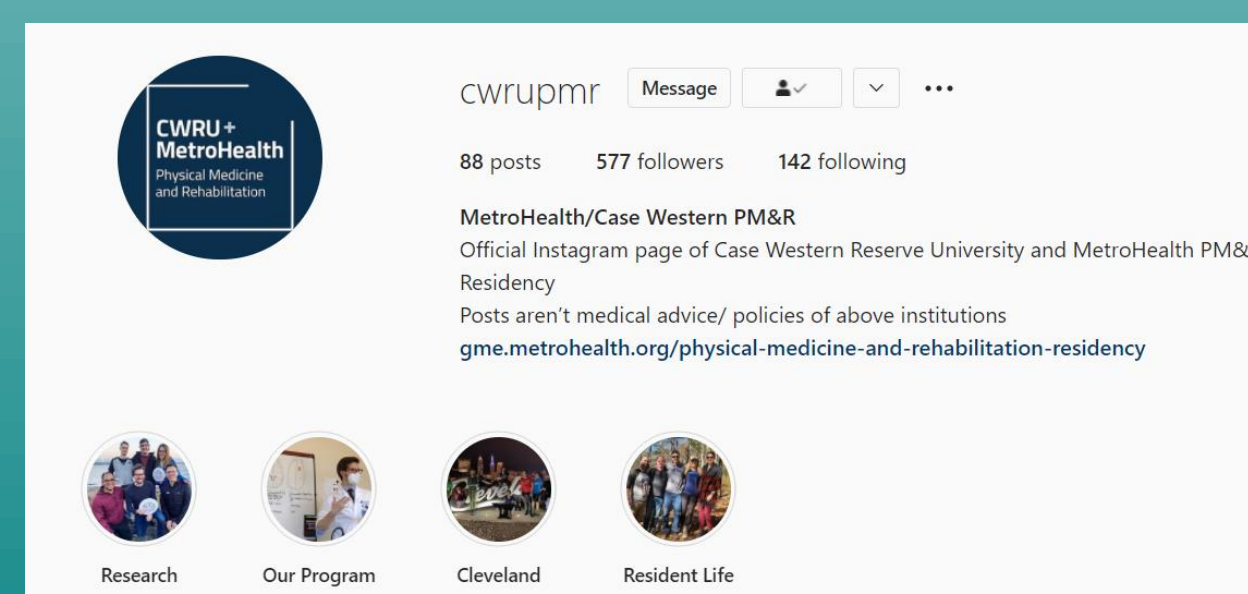
## Objectives

- Increase PM&R based research engagement by targeting the CWRU M1-M4 classes using social media in addition to traditional means.



## Methods

- The M1-M4 classes were contacted via university email and responders organized via a google form.
- In person informational session was undertaken to introduce the field of PM&R, show recent research within the department/residency and highlight the social media page.
- Instagram stories regarding recent department/residency research were created and posted.
- Those students attending the in-person session were contacted regarding their interest and given contact information for follow up and asked to view the Instagram page for further information.



## Results

- 66 students responded to the initial outreach regarding interest in PM&R.
- 20 students attended an in-person event at CWRU and interfaced with residents and faculty in addition to an introduction to departmental research and the residency Instagram page.
- 5 students responded after the event and were interested in further pursuing research, quality improvement, or other opportunities in the department.

## Conclusion

- The results demonstrate that the recruitment process achieved some success.
- The information presented on social media information drew several positive comments from interested students. However, it is difficult to identify the precise effect from the social media component due to inability to track the persons viewing the posts.
- Further steps could include a survey assessing the influence of the in-person session and interactions versus the social media content.





Medical Student Research Mentorship Program

Terrence Pugh, MD

Internal Mentor – Shanti Pinto, MD

External Mentor – Michael Mallow, MD

Atrium Health Carolinas Rehabilitation

Introduction

Background

- During our recent ACGME survey, both our faculty and residents identified a need for more research opportunities and mentorship as a potential opportunity for growth.
- A 2018 study by Conroy et al, showed that scholarly research projects help medical students match at more competitive residencies.
- The participating students will have an opportunity to attend a national meeting with networking events and add a meaningful research endeavor to their curriculum vitae.

Recruitment/Selection

- Mentorship program information and the application was added to our residency website while also publicizing it on our Carolinas Rehabilitation social media channels.
- Authors reviewed applications and selected 5 students to participate in the program.
- Once notified of their acceptance, the medical students were paired with a resident and a faculty mentor.

Program

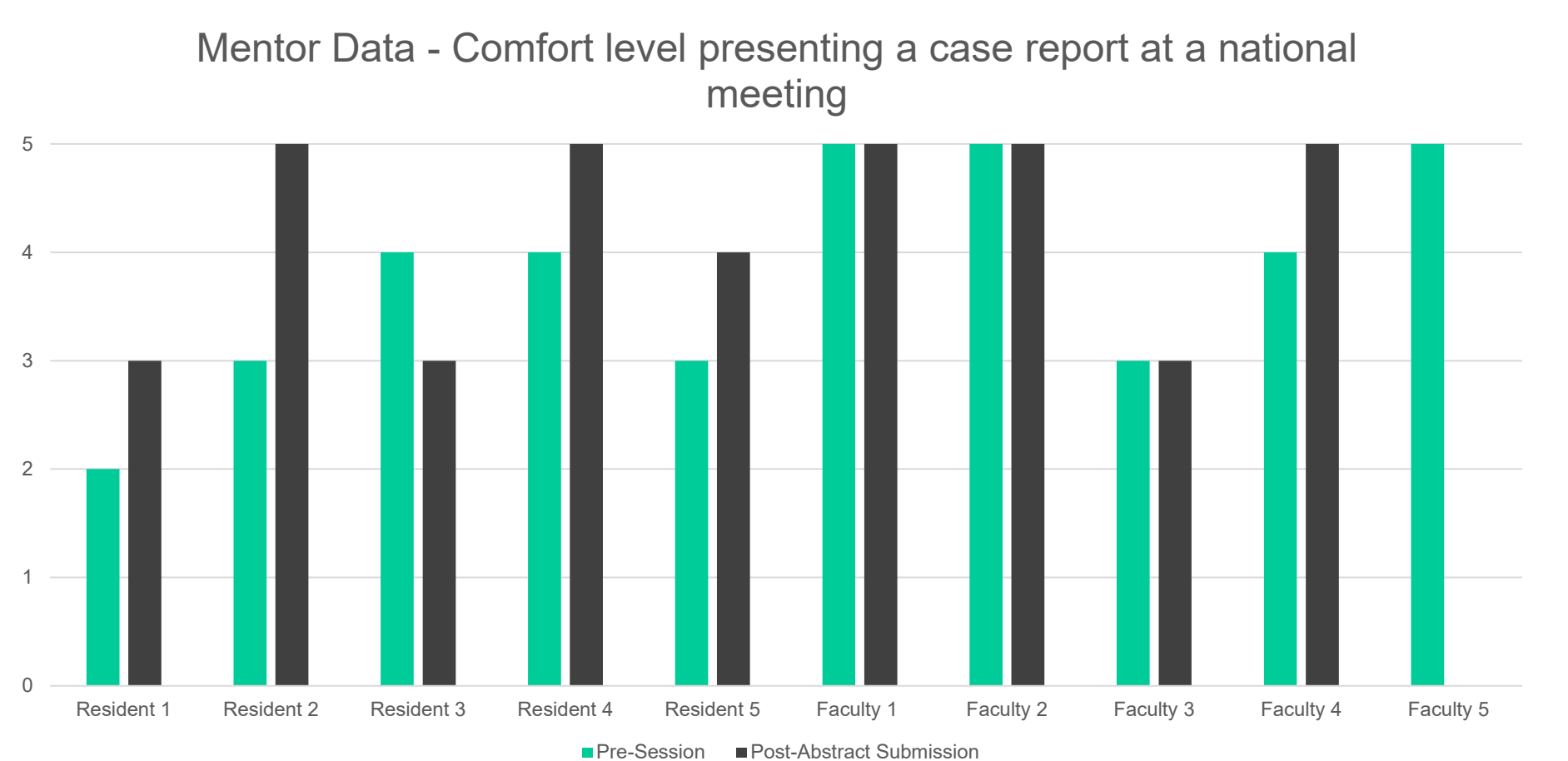
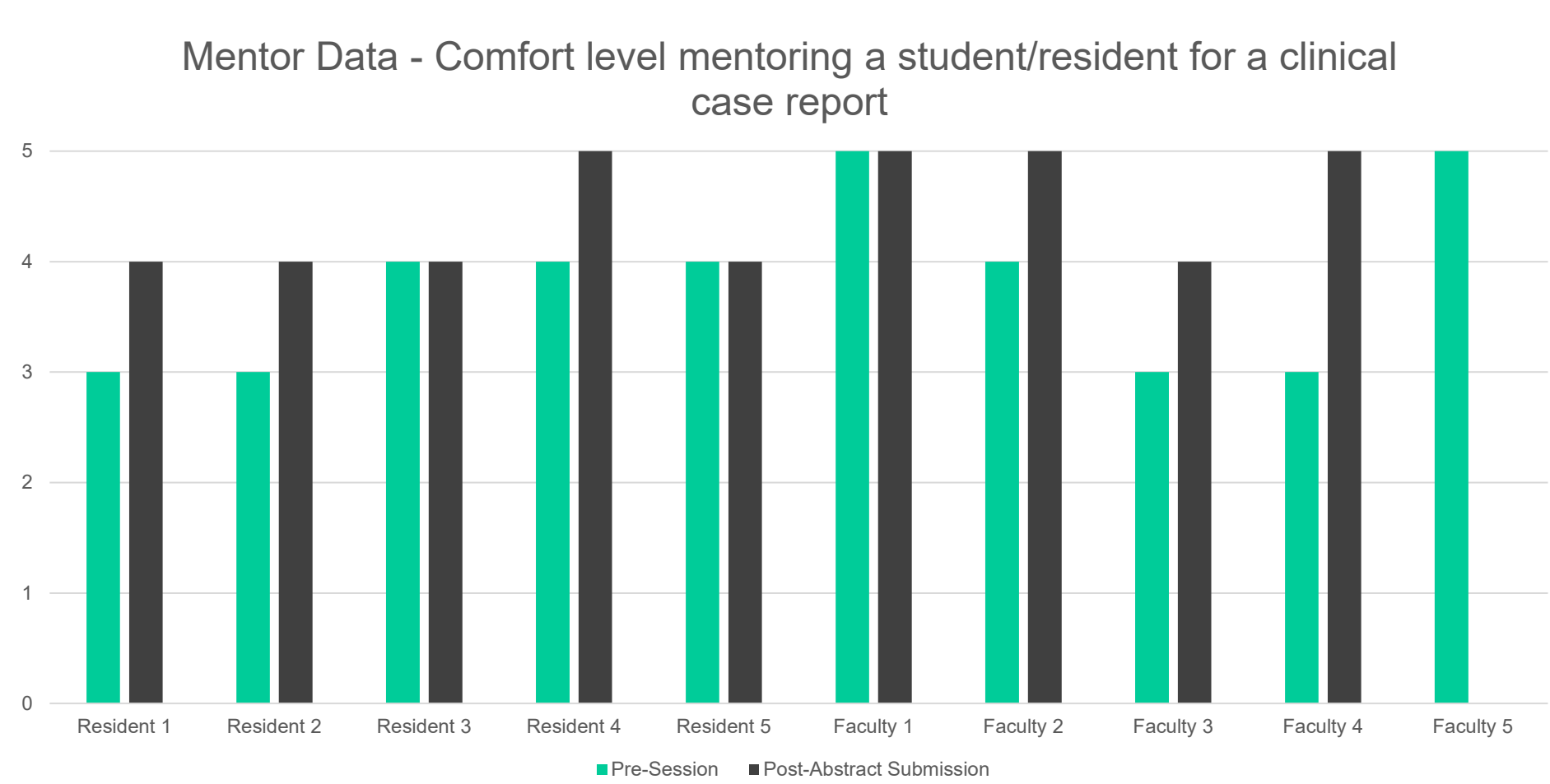
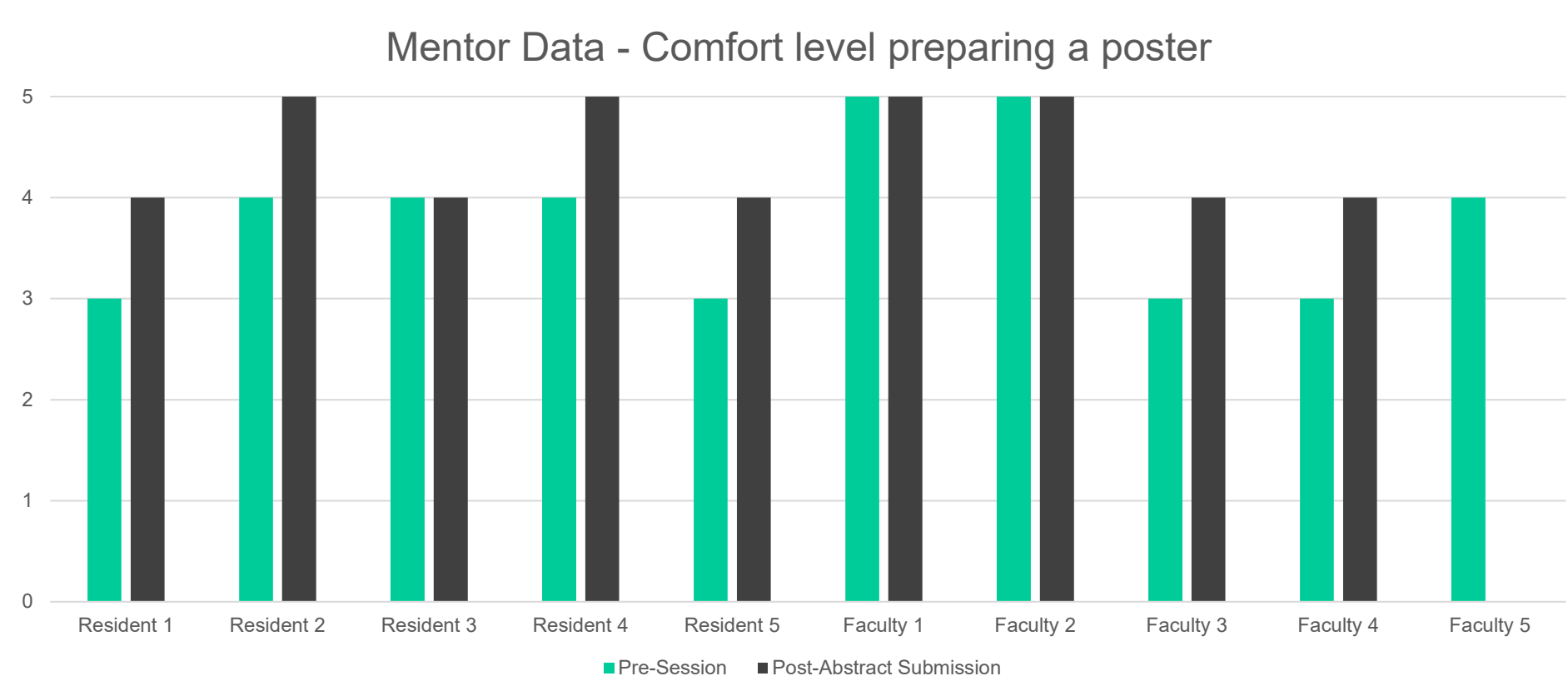
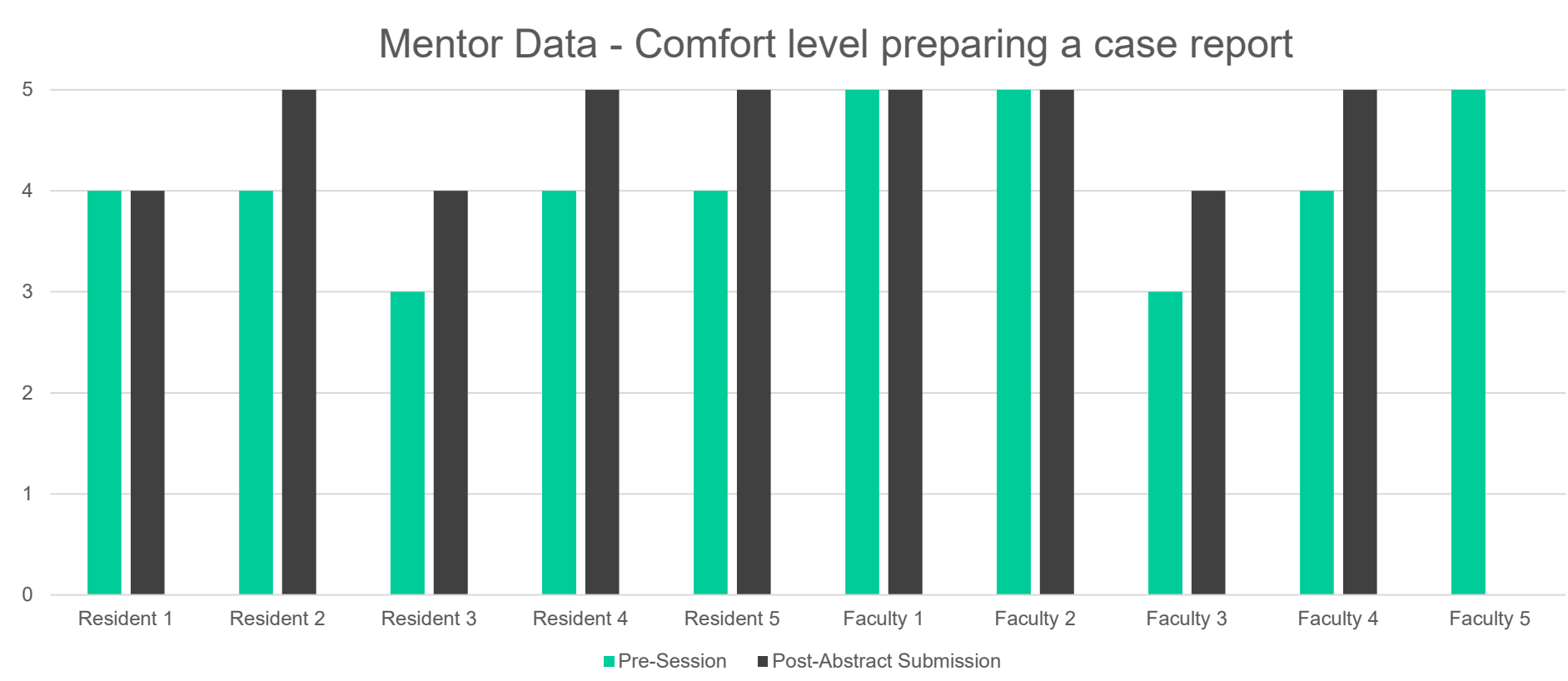
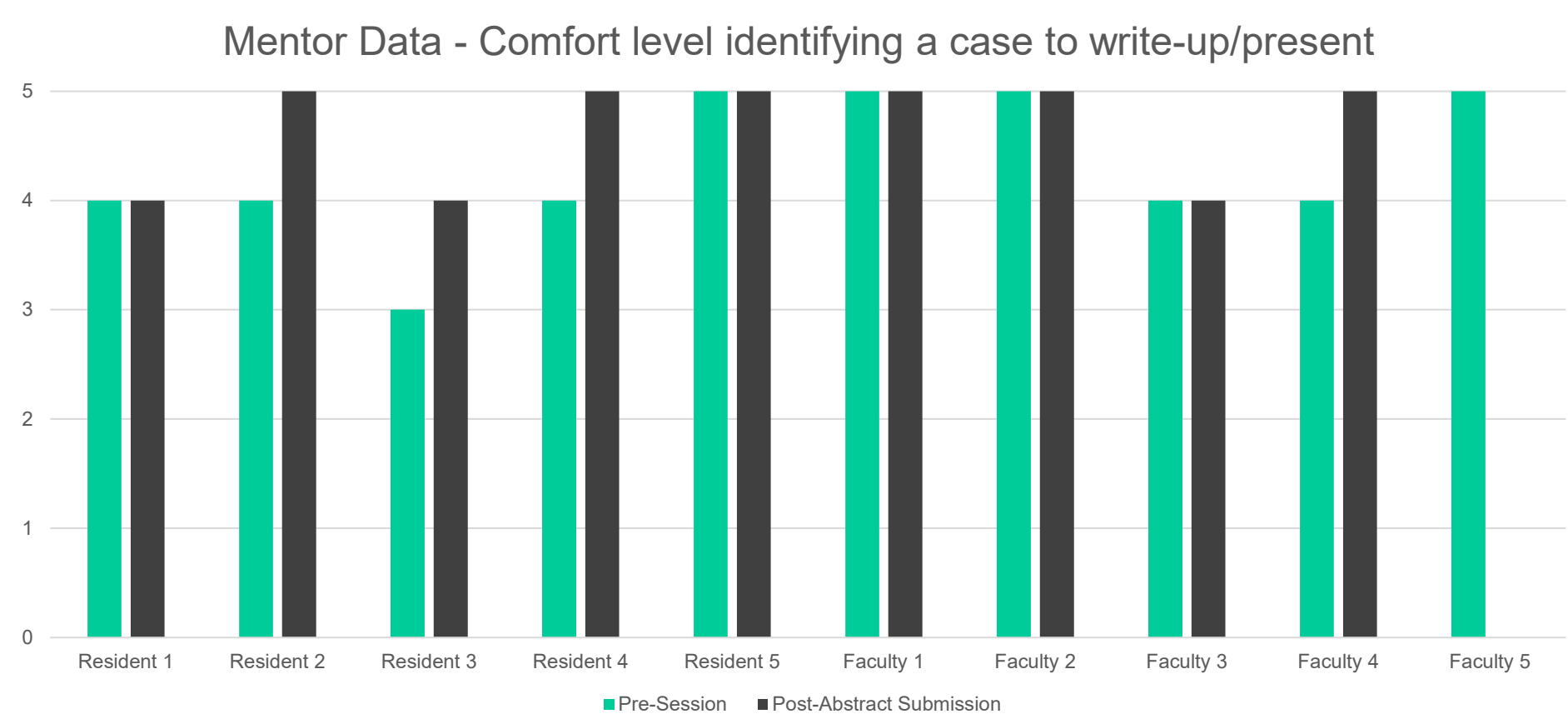
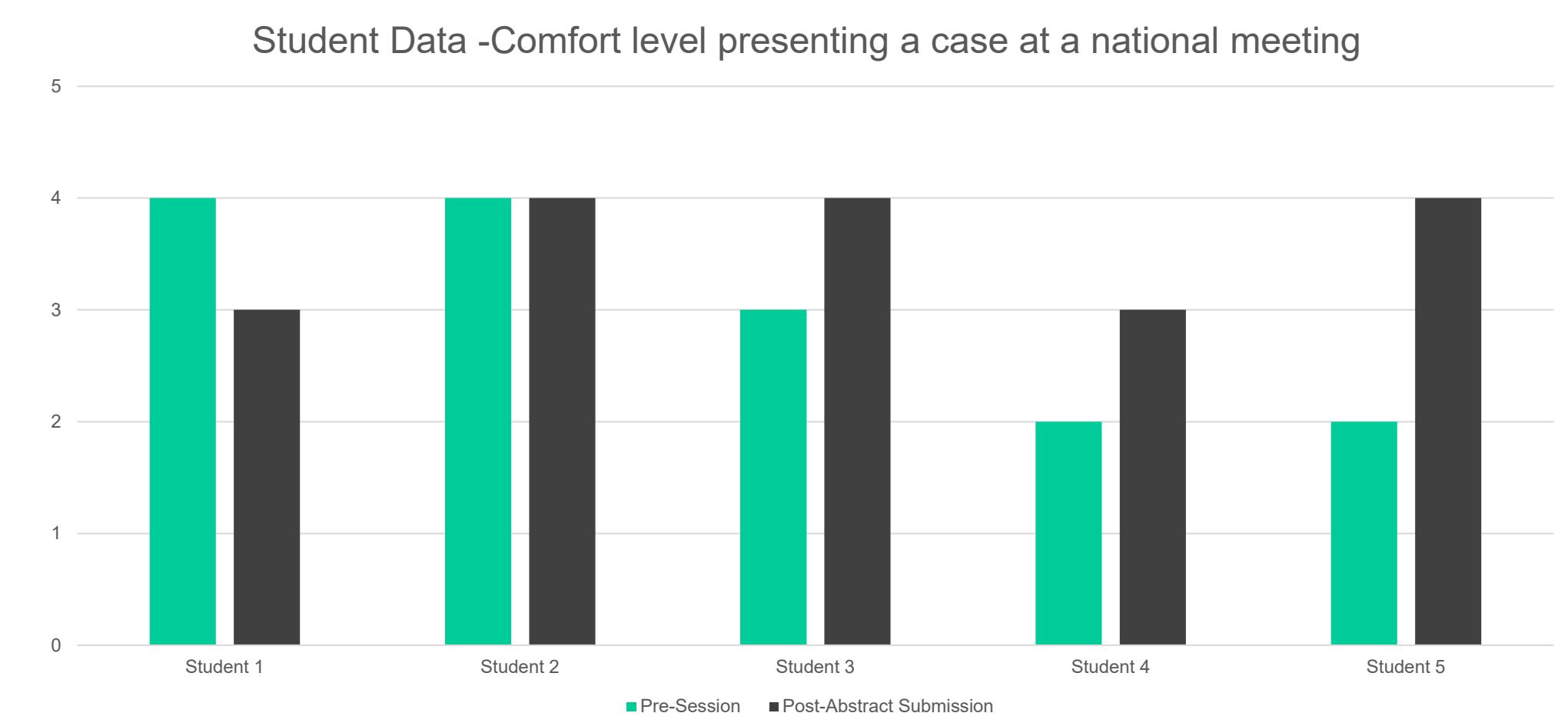
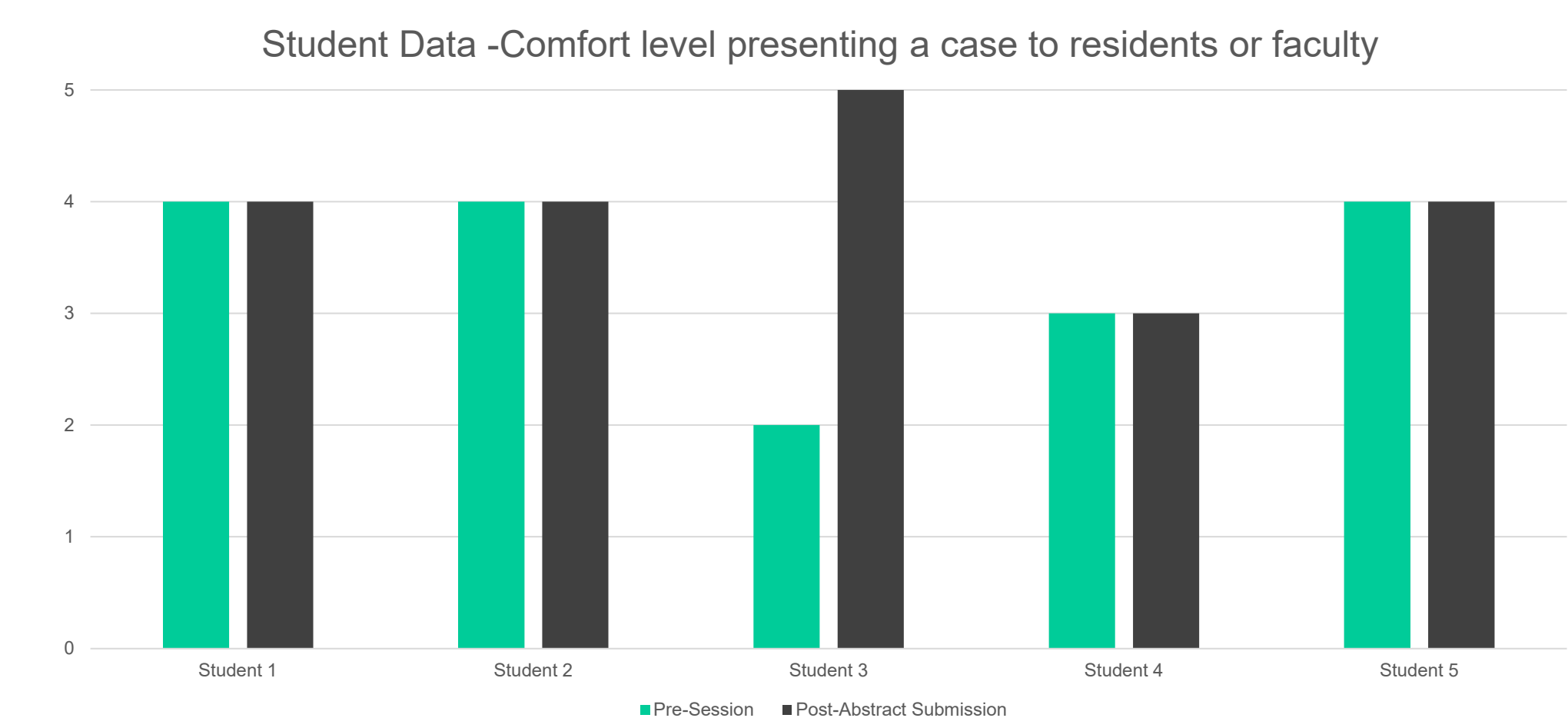
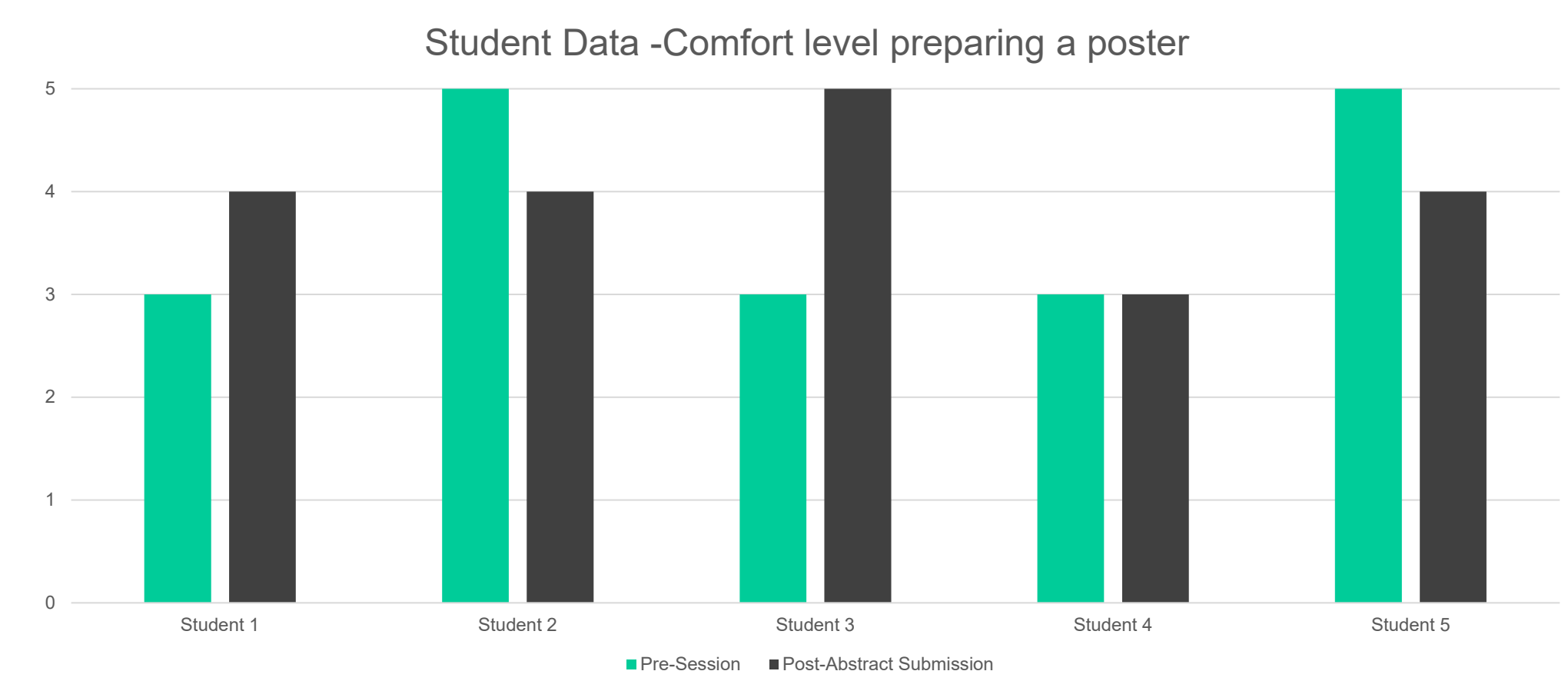
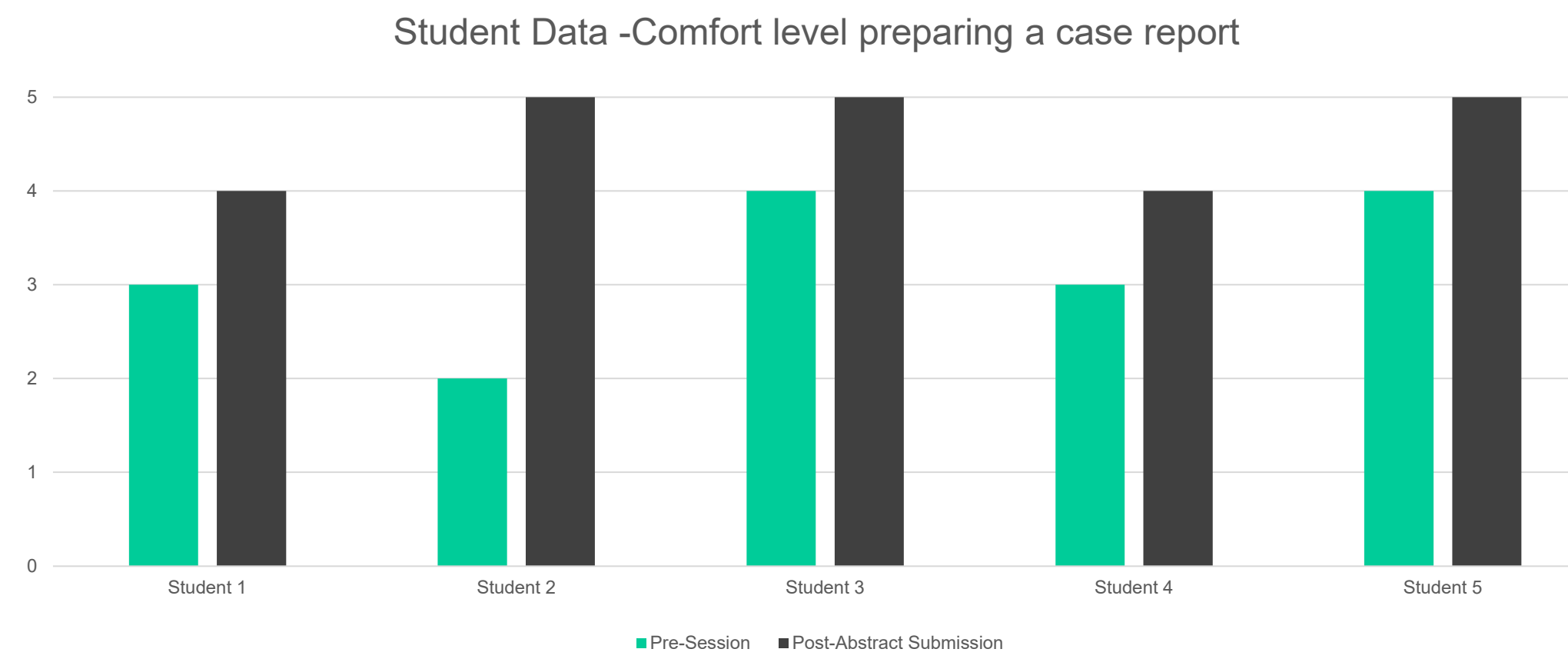
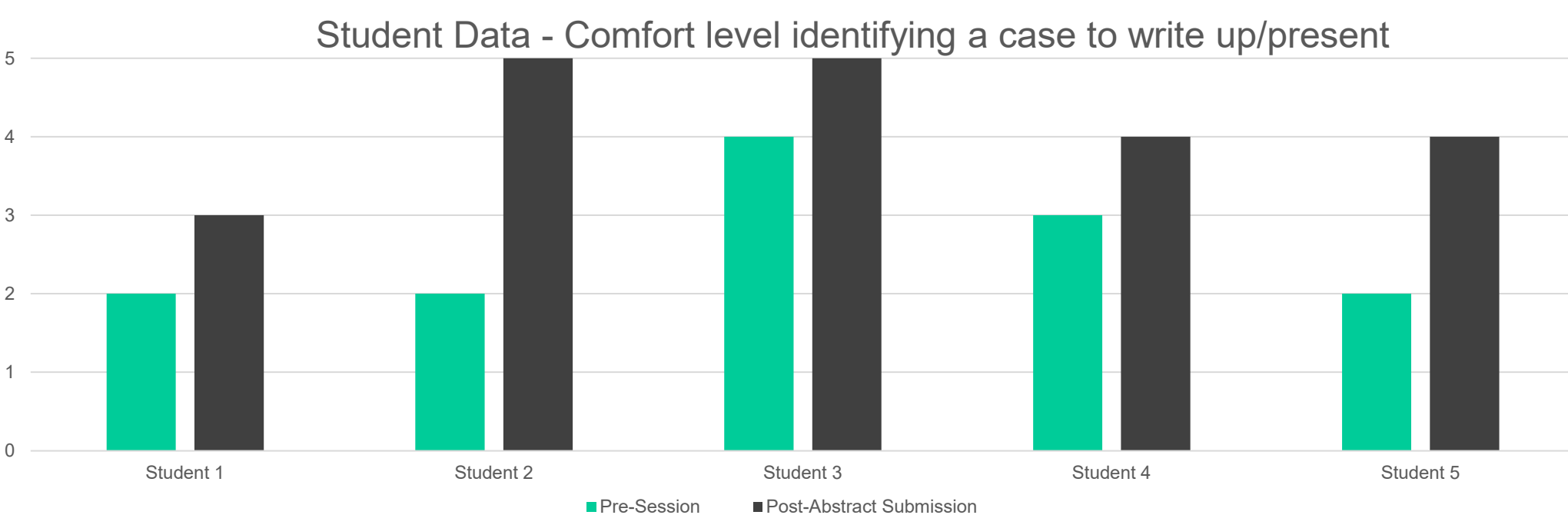
- The program enrollees/mentees are expected to attend all the virtual education sessions in anticipation of submitting a poster case report to the AAP and present at the annual meeting.
- The resident mentors are expected to attend all the education sessions and work with their faculty mentor to select an appropriate case.
  - Perform chart review and help the students prepare poster.
- The faculty mentor was tasked with selecting a clinical case appropriate for presentation and to meet with both the resident and medical student to discuss the case.
- The virtual sessions include topics such as
  - How to select a case
  - How to write a case report
  - How to create a poster
  - Virtual Presentations/Feedback sessions with the faculty, residents and other mentees enrolled in the program

Results

- Surveys as outlined were sent out at 3 points in the program: pre-program, prior to acceptance of abstract and at the conclusion of the program to gauge effectiveness.

Survey Results

Participating students, residents and faculty were given a survey prior to the beginning of the sessions and after abstract submission (prior to notification of acceptance) to determine comfort level with the following domains. Key is as follows: 1 = Very Uncomfortable, 2 = Uncomfortable, 3 = Neutral, 4 = Comfortable, 5 = Very Comfortable.



Discussion

The medical students were asked to present their case reports in one of the session and provided feedback about the cases. AAP abstract submission guidelines were followed prior to case submission. Mid-session surveys were sent to gauge the effectiveness of the of the program thus far. The surveys were sent out prior to the notification of acceptance in order to avoid bias in the responses. The participants did achieve a 100% acceptance rate of their abstracts. A post-program survey will be sent out after the AAP Annual Assembly for final results. Of note, faculty 5 was unable to complete mid-session survey due to medical leave.

Conclusions

As indicated by general improvement of the comfort levels of the participants in all aspects of the abstract submission process, the authors feel that this is an effective way to provide research mentorship to medical students. We also believe that the program will help participating residents and faculty feel more confident in their ability to mentor a learner through the abstract submission process. As this program will be continued annually, we anticipate that these abstracts will be converted into publishable case reports.

Resources

- Conroy MB, Shaffiey S, Jones S, et al. Scholarly research projects benefit medical students’ research productivity and residency choice: Outcomes from the University of Pittsburgh School of Medicine. *Acad Med.* 2018 Nov; 93(11):1727-1731. doi: 10.1097/ACM.0000000000002328.

Contact Info

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Acknowledgements

Thank you to Mark Newman, PhD for his contributions to this project.





# Integration of Patient-Reported Outcomes Measurement Information System (PROMIS) Data into Clinical Documentation to Improve Capture, Utilization and Stakeholder Collaboration

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\*PAL Participant, †Internal Mentor, §External Mentor

## Plan

- PROMIS is a set of self-reported measures to evaluate physical, mental and social health



- Validated to monitor impact of treatment in multiple domains across multiple specialties
- Computer Adaptive Test versions dynamically select from item-bank based on previous answers to reduce survey fatigue
- Institutional support for integrating PROMIS-CAT into EMR
- Measures sent automatically at pre-determined intervals after initial visits and specific interventions throughout patient's clinical course
- Data stored in EMR providing outcomes for future retrospective research studies
- Available in real-time to help inform clinical decisions based on response to prior treatment
- Buy-in required from clinicians, researchers and patients
- Integration of PRO data into clinical documentation has potential to decrease physician burden and increase data utilization

## Do

- EMR "smartpharse" developed to facilitate integration of PROMIS data into templated notes
- Baseline assessment of provider knowledge and use of PROMIS
  - 6/6 have heard of PROMIS
  - 1/6 collects PRO routinely
  - 1/6 uses PRO to inform clinical decisions
  - 1/6 uses PRO for research
  - 1/6 incorporates PRO into documentation
- Physician education provided to improve awareness
- Only post-education difference was in incorporation of PRO in documentation (2/6)

## Pre/Post-Education Assessment

1. I have an understanding of what is captured by PROMIS . . .



2. I have an understanding of how data captured by PROMIS can be utilized in my clinical practice . . .



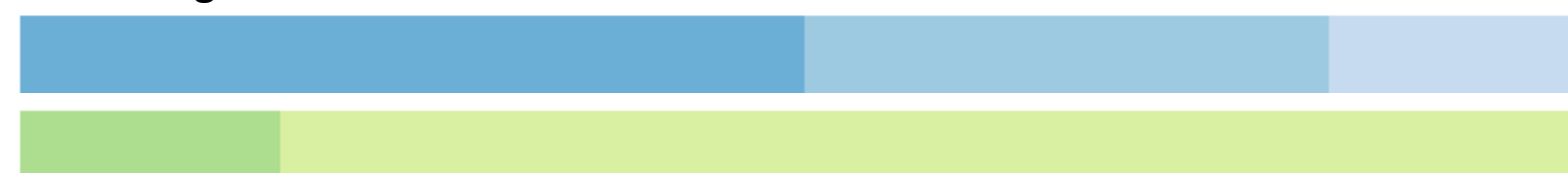
3. I have an understanding of how data captured by PROMIS can be utilized by researchers . . .



4. Collecting PRO is valuable for clinical decision making . . .



5. Collecting PRO is valuable for research



6. Collecting PRO is burdensome (i.e. slows clinical workflow, requires too many resources, etc.)



7. Reviewing and interpreting PRO is burdensome (i.e. slows clinical workflow, requires too many resources, etc.) . . .



Pre-education: Strongly disagree Somewhat disagree Neither agree nor disagree Somewhat agree Strongly agree

Post-education: Strongly disagree Somewhat disagree Neither agree nor disagree Somewhat agree Strongly agree

## Act

- Follow-up assessment of providers (N = 6)
  - Improvement in understanding of content as well as utilization and value of PROMIS for research
  - General improvement, but with some persistent low levels of understanding of clinical utility and value in clinical decision-making
  - Decreased perception of collection and interpretation of PRO as burdensome
- Limitations
  - Single education session with limited stakeholders
  - Patient perceptions of value and burden not assessed
- Future
  - Continue working with departmental and institutional leadership to capture PROMIS data
  - Focus-group discussions with physicians to understand perceived lack of understanding of utilization and value of PRO in clinical practice
  - Ongoing provider education with a focus potential clinical utility and value of utilizing PRO such as PROMIS
    - Stratification of patients to help with appropriate scheduling with the appropriate provider
    - Identification of physical, mental and social areas of concern that can help focus assessment of patients with multiple complex problems
    - Ability to assess effectiveness of treatment plan and adjust based on progress
  - Expand education efforts to other stakeholders including schedulers, roomers, assistants, nurses and researchers
  - Reassess influence on provider decision making once implemented for at least 6 months

## References

- National Institute of Health, Office of Strategic Coordination – The Common Fund. "Patient-Reported Outcomes Measurement System (PROMIS); <https://commonfund.nih.gov/promis/index>, accessed 12/9/2021.
- PROMIS Health Organization "What is PROMIS?"; <https://www.promishealth.org/57461-2/>, accessed 12/9/2021.



# Burke PM&R Residency Journal Club Improvement Project

Benjamin Seidel, DO  
10 December 2021

Internal Mentor: Janet Herboldt, PhD (Burke Rehabilitation Hospital, White Plains, NY)  
External Mentor: Vu Nguyen, MD (Carolinas Rehabilitation at Atrium Health, Charlotte, NC)



## Outcomes

### Context

As the residency program director, I am responsible for the appropriate education of our residents, which includes research. A critical element of research is understanding and developing a systematic appraisal process of medical literature. Previously, the residents participated in a supervised monthly journal club, that had no definitive rules on paper selection or methods of presentation and discussion. These journal clubs were often not conducive discussions, and end up being resident presentations of journal articles with little feedback from co-residents (or attending physicians for that matter) and no added knowledge to guide clinical practice. Traditionally, one assigned resident chose a paper and sent that paper out to co-residents (generally at around the 24-48-hour mark before presentation, which significantly reduced resident compliance with such little time to review the paper), and involved a power-point presentation to residents over zoom (see below) or in-person (prior to the pandemic). No additional resources (like books such as “How to Read a Paper”) were used to guide the resident, and the faculty mentor was minimally involved, often receiving notification of the paper a few days before the presentation- therefore making proper guidance difficult.

The pandemic has necessitated virtual platforms, which further complicates the environment and decreases the likelihood of interactivity. Social distancing rules in the coming months will likely be relaxed, and in-person experiences resumed.

The overarching goal of the improvement project was to create an engaging, interactive, and detailed overhaul of the current resident journal club that promotes life-long learning, achieves the core-competency of practice-based learning and improvement and translate knowledge to guide clinical practice. Further, this overhaul was designed to help support resident and faculty interactivity, improve critical thinking skills (in both residents and faculty), and translate evidence-based medicine into practice.

### Study Design

The journal club was rearranged to ascribe to a theme: (From “How to Read a Paper”), e.g. taking one of the chapters (e.g. guidelines), choosing an appropriate guideline paper (such as the Berlin Concussion guidelines), and discussing this in a standardized manner for the research type, the format of which is stipulated in each chapter. The resident physician presented the article in the context of this appraisal outline, and was supervised by the attending physician. Due to poor volunteering, the only faculty member/supervisor was myself (Benjamin Seidel).

In terms of metrics, percentage of attendance at the journal club was monitored. A questionnaire which contained Likert scaled questions (see middle column) was distributed to trainees at 2 intervals.

- 30 days after initiation of Journal Club (September 2021)
- 90 days after the first journal club (November 2021)

Subsequent analysis of the questionnaires were undertaken and the results summarized.

Question	Sept 15, 2021 (N=9)	Nov 19, 2021 (N=6)
My knowledge of how to read a research paper has increased due to the format of this journal club.	Strongly agree- 22.22% Agree- 77.78% Neither agree nor disagree- 0% Disagree- 0% Strongly disagree- 0%	Strongly agree- 33.33% Agree- 66.67% Neither agree nor disagree- 0% Disagree- 0% Strongly disagree- 0%
Arranging each journal club into a theme (e.g. guidelines, clinical trials, qualitative research, etc.) is an effective way of learning to appraise medical literature.	Strongly agree- 33.33% Agree- 66.67% Neither agree nor disagree- 0% Disagree- 0% Strongly disagree- 0%	Strongly agree- 16.67% Agree- 83.33% Neither agree nor disagree- 0% Disagree- 0% Strongly disagree- 0%
As part of the critical appraisal process, I understand how research helps to guide clinical practice.	Strongly agree- 66.67% Agree- 33.33% Neither agree nor disagree- 0% Disagree- 0% Strongly disagree- 0%	Strongly agree- 33.33% Agree- 66.67% Neither agree nor disagree- 0% Disagree- 0% Strongly disagree- 0%
I feel comfortable analyzing medical literature.	Strongly agree- 22.22% Agree- 66.67% Neither agree nor disagree- 11.11% Disagree- 0% Strongly disagree- 0%	Strongly agree- 0% Agree- 83.33% Neither agree nor disagree- 16.67% Disagree- 0% Strongly disagree- 0%
I feel supported in learning the skills to appraise literature through the core faculty member supervising journal club.	Strongly agree- 33.33% Agree- 66.67% Neither agree nor disagree- 0% Disagree- 0% Strongly disagree- 0%	Strongly agree- 33.33% Agree- 66.67% Neither agree nor disagree- 0% Disagree- 0% Strongly disagree- 0%

### Results

All Burke resident/trainees who were rotating at Burke and present for didactics completed the surveys (100% completion rate). External rotators (from the Montefiore and/or Mercy PM&R residency programs) were excluded from the questionnaire.

The results of the 2 questionnaires sent to resident learners revealed that the majority of residents felt that their knowledge of how to read and appraise literature improved due to the reformatting of journal club. Arranging the journal club into a theme was also felt to be an effective way of learning to appraise medical literature, and all felt they understood how research helps to guide clinical practice.

Despite these positive responses, 11.11% and 16.67% of residents still were neutral in their comfort level in analyzing medical literature, although all residents felt supported in learning the skills to appraise medical literature through the core faculty member supervision.

### Conclusions

My ultimate goal was to develop a sustainable, standardized, systematic assessment and appraisal of medical literature by trainees. This appraisal was designed to develop critical thinking skills and fulfill one part of the ACGME requirements for Practice Based Learning and Improvement, a core competency in residency.

By and large, the majority of the resident trainees felt that this new formatting was beneficial, and that they felt supported in this learning environment. A small percentage of the residents, however, still felt neutral in their confidence in appraising literature, which suggests that further improvements should be continually attempted.

A better understanding of medical literature analysis through journal club facilitates the resident’s participation in research in better understanding the amount of work required, the methodology, statistical analysis and reporting of studies and implications on clinical practice.

Finally, residents learn skills through journal club that include the ability to facilitate discussion amongst their peers, foster leadership skills, improve presentation skills, encourage growth of analysis, and a better understanding of research methods and statistical analysis.



# INTERVENTIONAL SPINE FELLOW SCHOLARSHIP PROGRAM

McCasey Smith, MD MS

Onsite Mentor: Sarah Eickmeyer, MD

External Mentor: Peter Esselman, MD

PLAN

- Spine fellowship requires manuscript submitted for publication by the completion of fellowship
- Currently, there is no infrastructure or timeline to support fellow scholarship.
- Over last 6 years, 50% of fellows have submitted for publication by the completion of fellowship
- Discussion of scholarship often does not occur until late in the academic year
- Goal is to complete milestones, complete and submit manuscript, and present in front of peers



DO

- Fellowship research timeline and infrastructure established
- 2 Quarterly meetings have been completed
- Fellow selected McCasey Smith, MD (myself) as research mentor
- Established review of sacroiliac joint interventions as topic
- Data collection has begun
- Manuscript and grand rounds are currently pending
- Additional case report written and pending submission



STUDY

- One manuscript completed, one currently pending
- Low data points due to only one current fellow



ACT

- Increased participation in scholarship/research



# Demystifying Industry-Sponsored Research Compensation Models in Academic Medicine

Jennifer Soo Hoo, MD<sup>†</sup>; Michael O'Dell, MD<sup>†</sup>; John Chae, MD<sup>‡</sup>

<sup>†</sup> Weill Cornell Medicine, Department of Physical Medicine and Rehabilitation, New York, NY

<sup>‡</sup> Case Western Reserve University, Department of Physical Medicine and Rehabilitation, Cleveland, OH

## BACKGROUND

- Physician participation in industry-sponsored clinical trials is essential to medical progress.
- Industry sponsored research can be an important source of income for medical schools and departments
- Positive residuals are unique to industry-sponsored research trials and result when total funding received from sponsor exceeds total expenditures at project end date
- We have several physicians in our department who are currently participating in an industry-funded clinical trial
- Our department has no current guidelines on how to best use positive residuals that can often result from industry initiated trials
- Further insight and knowledge regarding how different institutions handle this will be helpful in formulating a set guideline that can help our institution (as well as other institutions).

## METHODS

- Sent out survey to Weill Cornell Medicine's Rehab Medicine faculty and established that **none** of the physicians had any understanding on how our department uses positive residuals from industry research trials
- Created survey to see how other programs use positive residuals from industry sponsored research trials
- Distributed survey to all academic PM&R program chairs on Association of Academic Physiatrists listserve to complete.
- Collated and used information obtained and met with our vice-chair to help create our department's model

## RESULTS

Figure 1. Number of industry-initiated clinical trials each department has participated in in last 10 years

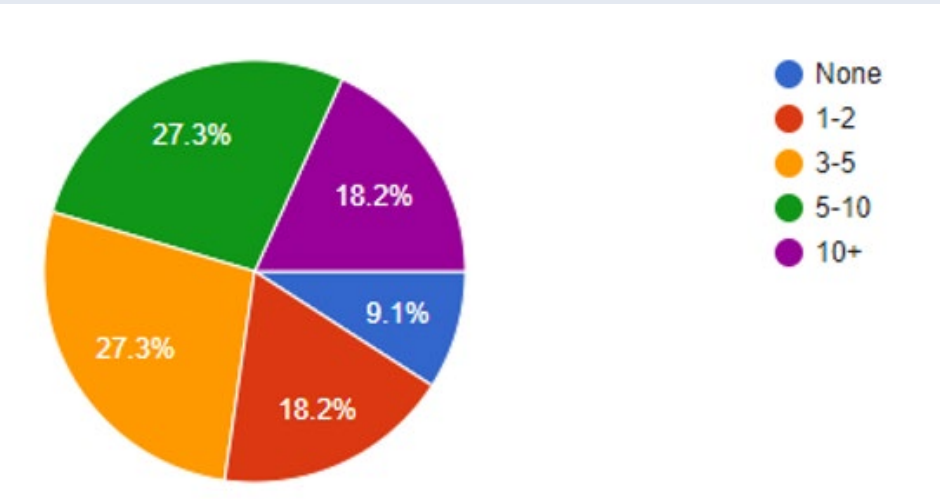


Figure 2. Departments that have had industry-initiated trials that generated positive residuals

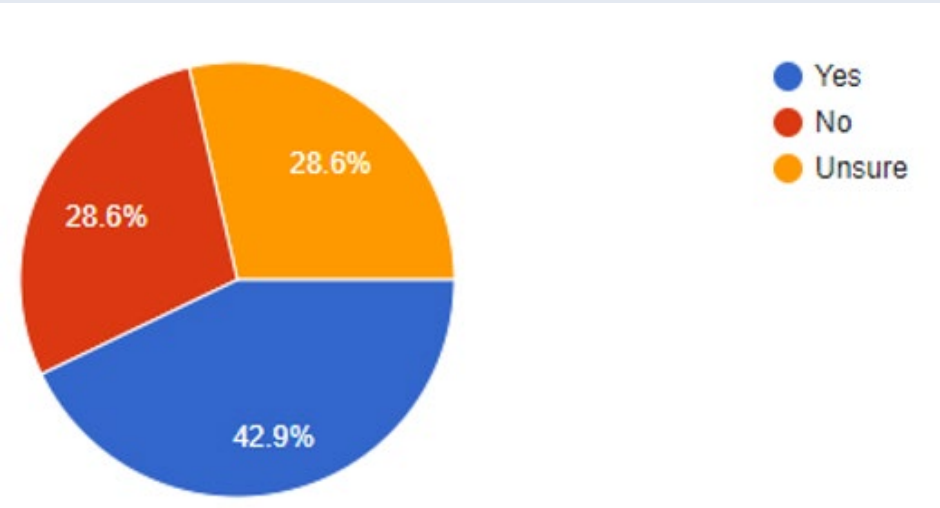


Figure 3. Departments that have set guidelines on how positive residuals are used

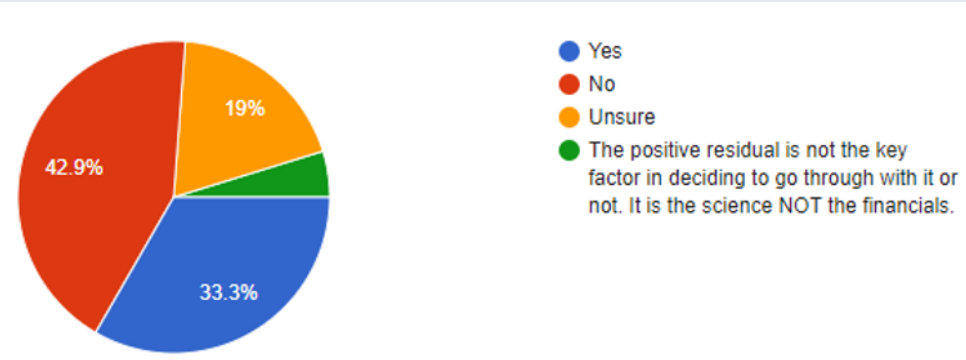


Table 1. Who spends residuals in each department

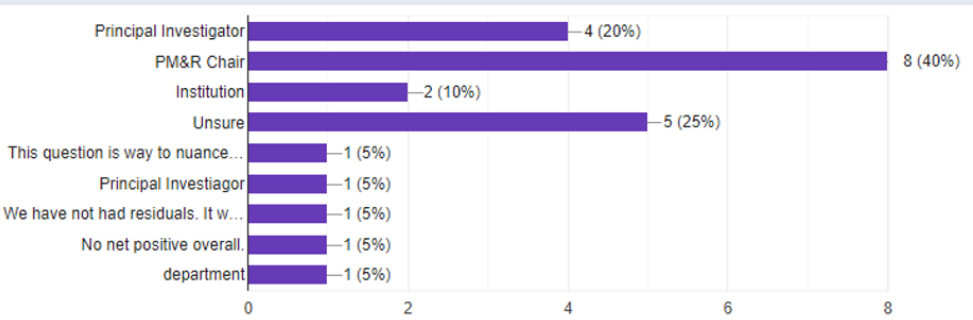
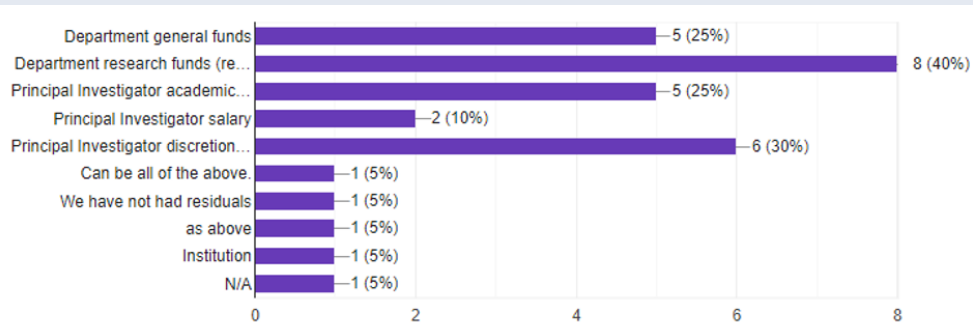


Table 2. How residuals are used within each department



## RESULTS

- Survey response rate is 22/115 (19%)
- 86.4% of program respondents have faculty who participate in industry-initiated trials

## RESULTS/DISCUSSION

- The majority (86.4%) of departments have faculty participate in industry-initiated trials
- The majority of departments (72.7%) have participated in 3+ trials in the last 10 years
- The majority of departments (42.9%) participated in industry-initiated trials generated positive residuals, with an additional 28.6% were unsure
- The majority of departments (61.9%) do not have set guidelines or policies or were unsure on how positive residuals are used in their department
- Positive residuals were most commonly spent by PM&R chair (40%) followed by Principal Investigator (25%)
- Within a department, positive residuals were most commonly used for department research funds, PI discretionary fund, department general funds, and PI academic fund.

## CONCLUSIONS

After reviewing data on other programs' models, our proposed model to present to our chair to use remaining residual funds:

- 1/4 department general fund
- 1/4 department research fund
- 1/4 PI academic/research fund
- 1/4 PI discretionary fund



**Weill Cornell**  
**Medicine**

**NewYork-Presbyterian**  
Rehabilitation Medicine



**COLUMBIA UNIVERSITY**  
*Vagelos College of Physicians and Surgeons*



# Introducing a Care Transition Coordinator to Determine the Impact of Follow Up in Patients Who Have Sustained a Brain Injury After Discharge from Acute Inpatient Rehabilitation

Erika L. Trovato, DO, MS<sup>1,2</sup> and Maddalena Triglia<sup>1</sup>

Internal Mentor: Janet Herbold, PT, PhD, MPH<sup>1</sup> External Mentor: Thomas Watanabe, MD<sup>3</sup>

<sup>1</sup> Burke Rehabilitation Hospital, White Plains, NY <sup>2</sup> Department of Rehabilitation Medicine, Albert Einstein College of Medicine <sup>3</sup> MossRehab at Elkins Park, Einstein Healthcare Network

## Background

Patients who have sustained a brain injury are at high risk for poorer outcomes due to a multitude of reasons, including poor physician follow up in the community.

Historically, Burke Rehabilitation Hospital (BRH) did not have a strong outpatient physiatry faculty group practice (FGP) for patients after discharge from acute inpatient rehabilitation (AIR).

Since joining the Montefiore Health System (MHS) in 2016, Burke has developed a FGP whereby every patient discharged is scheduled for an outpatient follow up appointment.

Burke is located in a suburban area without direct access to public transportation, about 40 minutes north of Manhattan / Bronx, which can prove difficult for the patient population that is largely drawn from this urban area.

Expert consensus jointly authored in 2011 by the American Academy of Pediatrics, American Academy of Family Physicians, and American College of Physicians supports the use of health care transition (HCT) care coordination<sup>1</sup>

Previous studies have revealed care coordination are associated with favorable family-provider relations, improved health outcomes, and decreased cost

BRH recently funded a Care Transition Coordinator (CTC) to facilitate the transition from AIR to outpatient follow up in the FGP after discharge for the brain injury patient population

## Objectives

Determine if the introduction of a care transition coordinator (CTC) impacts outpatient follow up of patients with stroke and TBI after discharge from acute inpatient rehabilitation

Determine if hospital location and discharge physician impacted outpatient follow up of patients with stroke and TBI between July and October 2021

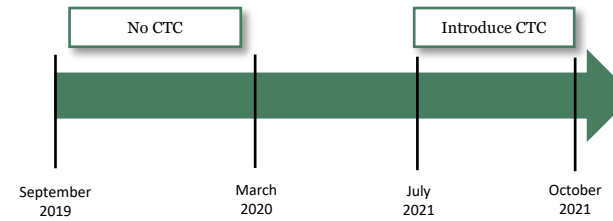
## Study Design

Baseline data collection

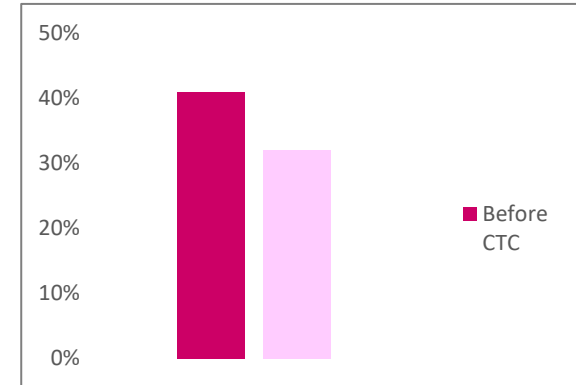
- No CTC utilized
- September 2019 – March 2020
- Patient follow up percentage determined

Introduce CTC in stroke and TBI units

- July 2021 – October 2021
- Patient follow up percentage determined, including hospital unit and discharge physician



## Results



Due to the COVID-19 pandemic, CTC resources were redirected between March 2020 and July 2021.

Compared to baseline follow up, the introduction of a CTC did not positively impact the follow up percentage of discharged brain injury patients in the outpatient setting between July and October 2021.

Follow up of patients in the FGP was likely impacted by the COVID-19 pandemic, limiting

## Conclusion

The COVID-19 impact likely influenced the true impact of the CTC on the follow up of patients with brain injury who were discharged from acute inpatient rehabilitation.

More in depth analysis is needed to determine the best mode of communication between the patient and CTC.

Further investigation into trends, patient characteristics and possible association between physician, hospital unit is warranted.

## Future Directions

Design a patient database of all patients discharged from either of the two acquired brain injury units at BRH

Identify factors associated with phyiatrist follow up post discharge can be utilized to target patient barriers and focus resources to improve continuum of community-based medical care.

## References

<sup>1</sup>American Academy of Pediatrics; American Academy of Family Physicians; American College of Physicians; Transitions Clinical Report Authoring Group; Cooley WC, Sagerman PJ Supporting the health care transition from adolescence to adulthood in the medical home. *Pediatrics* 2011;128 (1):182 –200.

<sup>2</sup>Turchi RM, Berhane Z, Bethell C, Pomponio A, Antonelli R, Minkovitz CS, Care coordination for CSHCN: associations with family-provider relations and family/child outcomes. *Pediatrics*.

<sup>3</sup>Peikes D, Chen A, Schore J, Brown R. Effects of care coordination on hospitalization, quality of care, and health care expenditures among Medicare beneficiaries: 15 randomized trials. *JAMA*. 2009;301(6):603–618 2009;124 (suppl 4): S428–S434.



Internal Mentor: Richard D. Wilson MD<sup>1</sup>; External Mentor: Monica Verduzco-Gutierrez MD<sup>2</sup>; Additional team members: Colin Kammeraad MD<sup>1</sup>, Kelli Florio<sup>1</sup>

<sup>1</sup>MetroHealth Rehabilitation Institute, Case Western Reserve University School of Medicine, Cleveland, Ohio;<sup>2</sup>UT Health San Antonio, Lozano Long School of Medicine, San Antonio, Texas

### Plan

- An identified limitation for several planned TBI research studies at MetroHealth Rehabilitation Institute (MRI) is lack of standardized outcome and assessment tools for patients with TBI seen in our clinics
- Only 1 tool was accessible in PM&R EMR for TBI clinic use
- Standardized and easily retrievable outcomes and assessments would support future research, the clinical enterprise, and program improvement projects

### Objectives

- 1)Identify standardized outcome and assessment tools for patients with TBI that can be feasibly collected within clinical care
- 2)Implement use of identified tools in MRI outpatient clinics

### Do

A) Evaluate assessment tools for implementation

#### Resources reviewed to identify potential tools

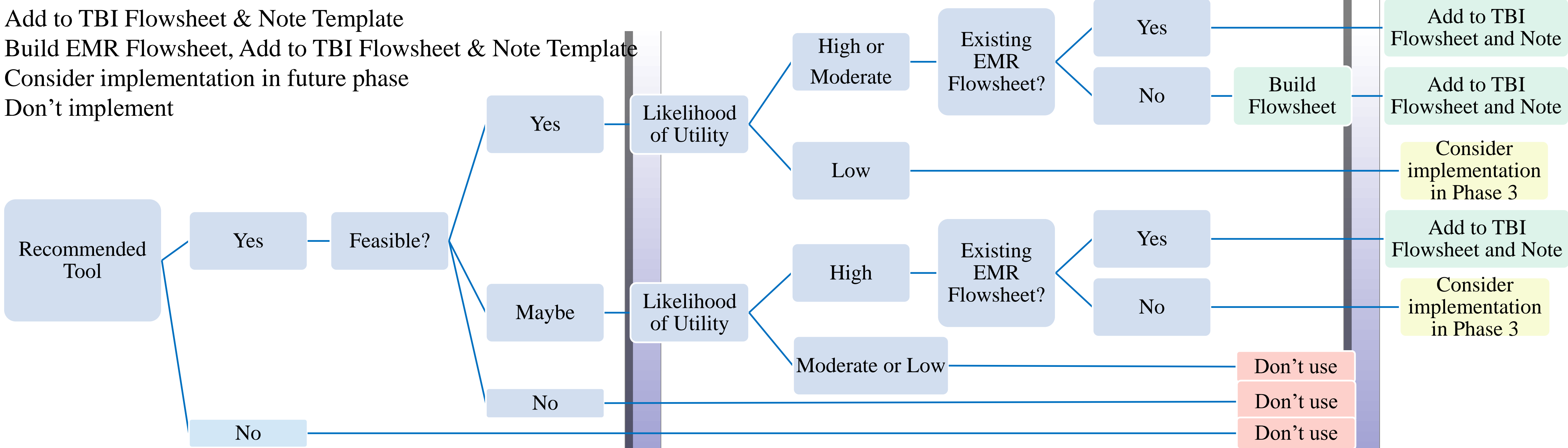
- AAPM&R Quality Tool Box for mild TBI
- NINDS CDE Catalog
- TBI Model System Data Dictionary
- Wilde et al (2010) Recommendations for the Use of Common Outcome Measures in TBI Research

#### Evaluation Criteria

- Recommended by 1 or more resources
- Feasible for collection in clinical setting
  - Cost = Free
  - Completion Time = Brief
    - Ideal = <5 minutes
    - Possible = <15 minutes
  - Available Online
- Evidence for use in TBI, if available

B) Potential actions based on Recommendations, Feasibility, Likelihood of Utility, Existing EMR Flowsheet:

- Add to TBI Flowsheet & Note Template
- Build EMR Flowsheet, Add to TBI Flowsheet & Note Template
- Consider implementation in future phase
- Don't implement



#### Assessment and Outcome Tool Categories

Global level of functioning

Psychological Status/ Substance Use

TBI-related symptoms

Cognitive and Physical Activity Limitations

Social Role Participation

Perceived Health-Related Quality of Life

Neuropsychological Impairment

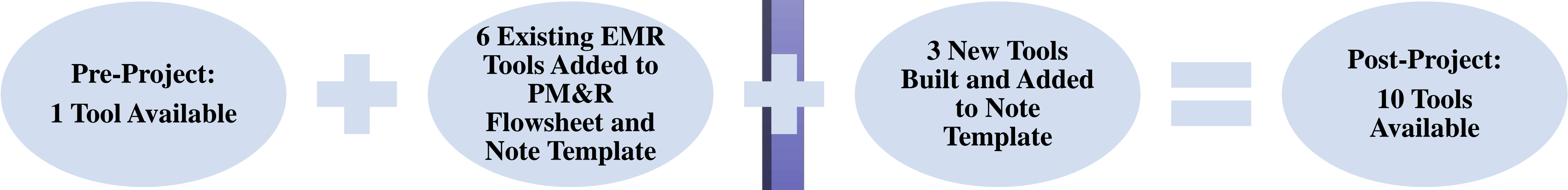
Executive Function

C) Build EMR Tools

1. Build new EMR Flowsheets for tools
2. Build new TBI Flowsheet to make all tools easily accessible to clinicians
3. Add Flowsheet Links to Note Template

### Study

Phase 1: 9 tools implemented



Additional areas of improvement identified:

- Patient-Reported Outcomes (PROs) collected before clinic visit would improve collection and utility
- Additional potential tools will require further build or clinic support (3 tools)
- Two assessment tool categories had no feasible tools for in-clinic implementation

### ACT

Phase 2 upcoming:

- Plan: Use of MyChart surveys to improve collection of PROs
- Do: Build surveys
- Study: Evaluate usage and optimal collection timing
- Act: Optimize as needed

Phase 3 upcoming:

- Plan: Modify clinic structure to include early neuropsychologic evaluation based on finding of categories with no feasible in-clinic tool identified

### References

Wilde et al Arch Phys Med Rehabil Vol 91, Nov 2010

AAPM&R Quality Tool Box for mild TBI

[CDE Catalog](#) | [NINDS Common Data Elements \(nih.gov\)](#)

TBI Model System [Datadictionary \(tbindsc.org\)](#)

[Rehabilitation Measures](#) | [Shirley Ryan AbilityLab \(sralab.org\)](#)



# Implementing a Research Curriculum in Resident Education: A First Step in Cultivating a Culture of Research

Kristin Wong, MD

The University of Texas at Austin, Department of Neurology, Division of PM&R

Internal Mentor: Christopher Garrison, MD, MBA. External Mentor: William Scelza, MD

## Background

The ACGME requires residency programs to advance residents' knowledge of the basic principles of scientific inquiry, including how research is designed, conducted, evaluated, explained to patients, and applied to patient care. Residents must learn to think critically, evaluate literature, and they must also participate in scholarly activities. PM&R residents at The University of Texas at Austin Dell Medical School are required to participate in a research study or quality improvement study during their time in training. The Neurology department, under which the division of PM&R is housed, hosts an annual Clinical Neurosciences Resident Research Symposium in which all residents are required to either present a poster or give a podium presentation. While there is a research lecture series provided by the Dell Medical school, the lectures are not integrated into the residents' weekly learning conferences, and the timing interferes with clinical duties. The PM&R learning conference curriculum currently does not have a research lecture series. Of the PM&R faculty at this institution, we had one faculty member with a PhD who provided some research lectures, but he has taken an opportunity elsewhere since the initiation of this project. Resident research education should not fall solely on one faculty member. Barriers to resident participation in research may include residents' lack of previous research experience, lack of knowledge on the basic principles of research design, and lack of knowledge on what tools/resources are available to them.

## Aims

- We aim to integrate a research lecture series that is reproducible and sustainable without overtaxing one faculty member, which could make a long lasting change for the program and perhaps be the first step in creating a culture of scientific inquiry in the department.
- We aim to increase resident knowledge of research, reduce barriers to access to research projects, and increase the number of scholarly projects in development.

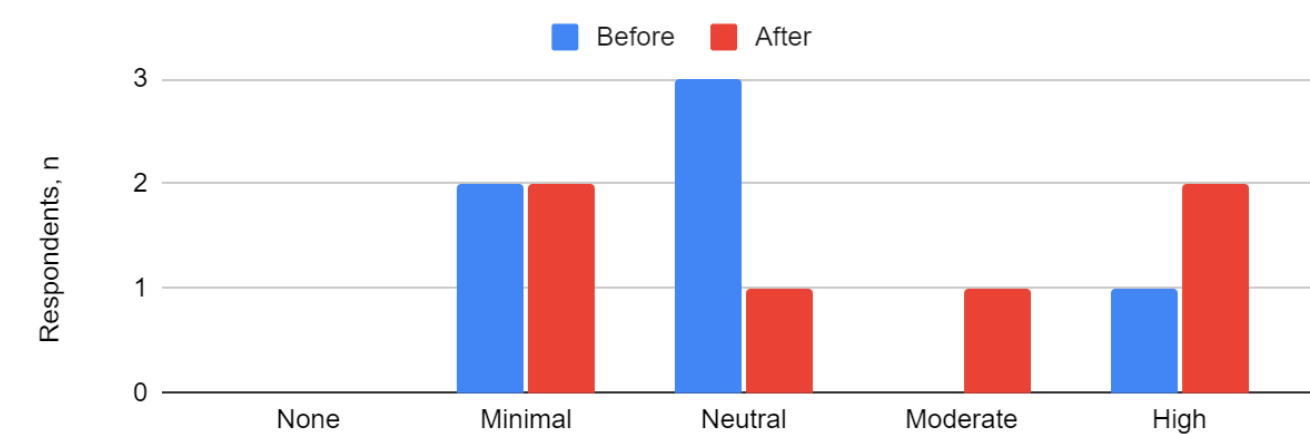
## Methods

- All six PM&R residents first completed a pre-Research Curriculum questionnaire.
- The Research Curriculum consisted of a combination of in-person lectures by PM&R faculty, live virtual lectures, on-demand videos from the Dell Med Nuts & Bolts Research Lecture series, and in-person dedicated workshop time with direct faculty mentorship. The curriculum was as follows:
  - 7/21/21 *Research 101/Intro to Research* (in-person with PMR faculty)
  - 8/4/21 *Intro to PM&R Research and Resources at Dell Medical School UT Austin* (in-person with PM&R faculty)
  - 8/25/21 *QI part 1* (in-person with PM&R faculty)
  - September: *Dell Med IRB Part 1 and Part 2* (virtual pre-recorded videos from the Dell Med Nuts & Bolts Research Lecture Series; independent learning)
  - 9/22/21 *QI part 2* (in-person with PM&R faculty)
  - 9/29/21 *Research Workshop* (in-person with PM&R faculty)
  - 10/21/21 *Ascension Site Approval Process Overview* (live virtual attendance on Zoom; part of the Dell Med Nuts & Bolts Research Lecture Series)
  - 11/17/21 *Research Workshop and ABPMR PIP Infosession* (in-person with PM&R faculty)
- All six PM&R residents completed a post-curriculum questionnaire.
- This project was incorporated into our monthly Program Evaluation Committee (PEC) meeting to align with our residency program's operations.
- A scholarly activity tracking tool accessible to all PM&R residents and faculty was established and made accessible in the shared drive.
- Basecamp.com was designated as a project management tool to facilitate group collaboration.

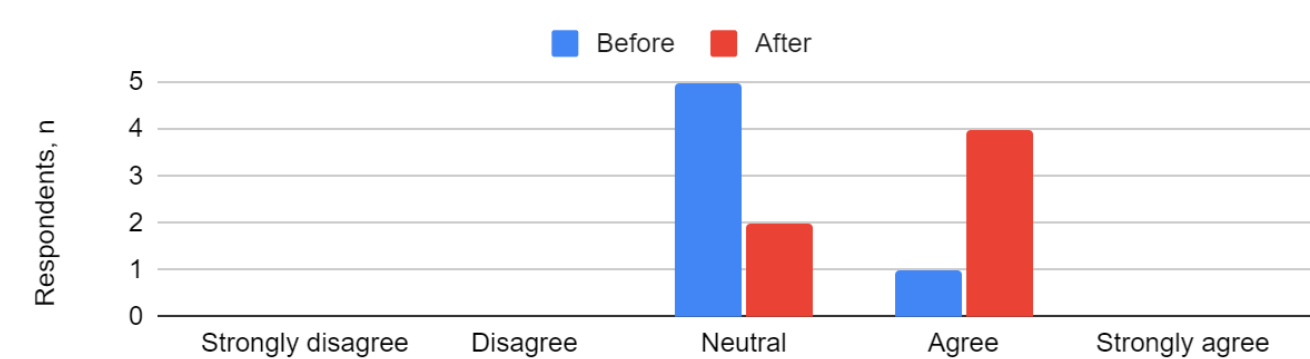
## Results

Pre- and Post-Research Curriculum Questionnaire Responses:

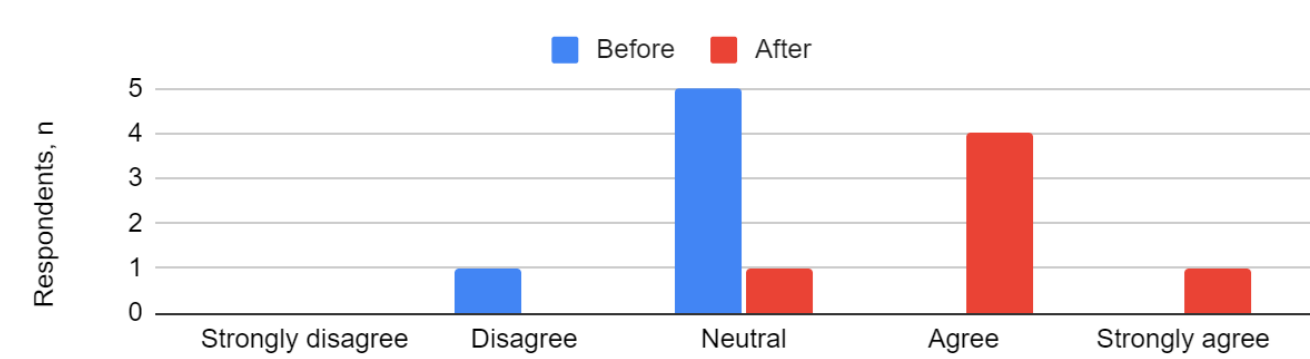
- Please indicate your current interest level in doing research/QI (quality improvement).



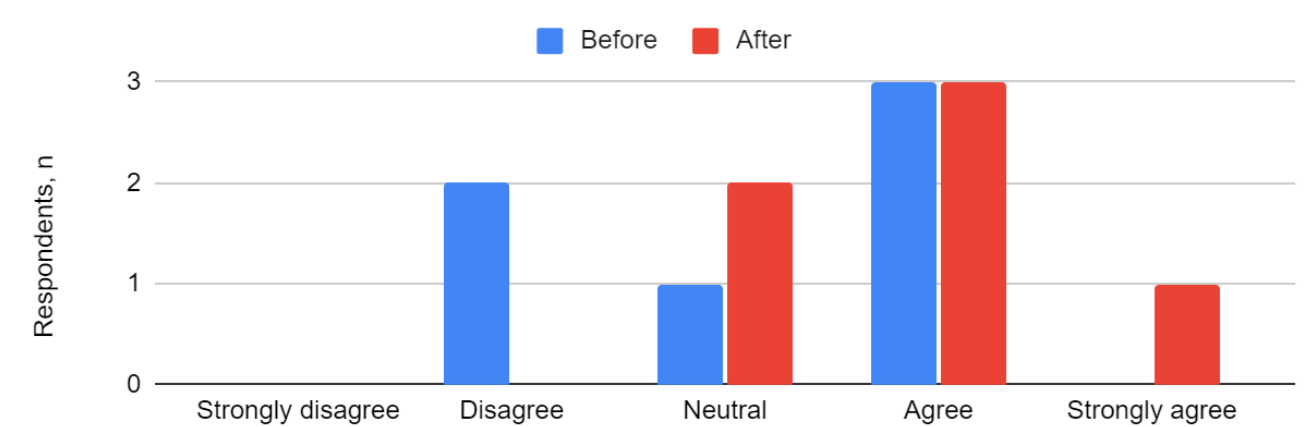
- I am effective in locating, appraising, and assimilating evidence from scientific studies.



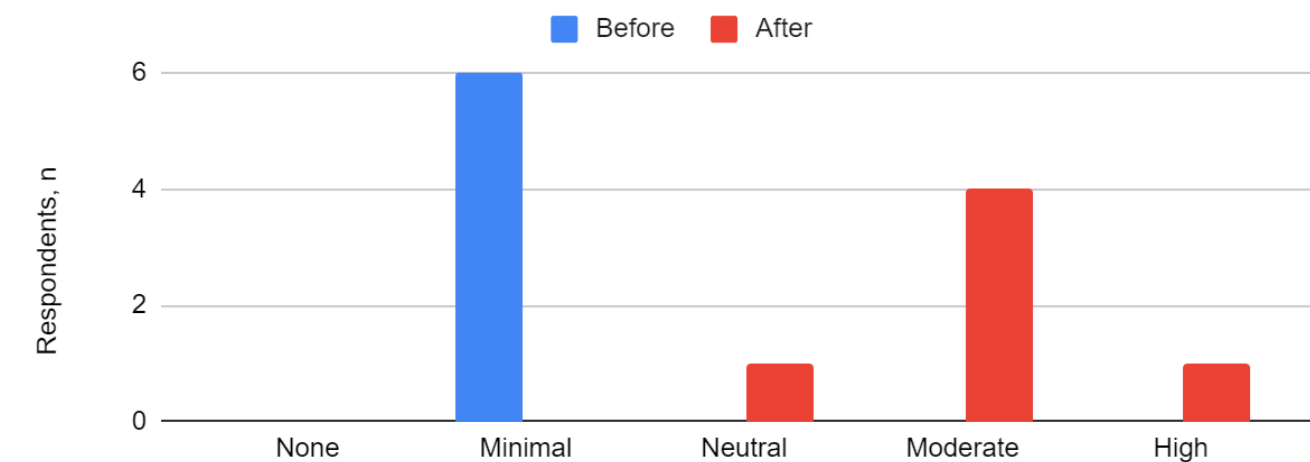
- I have the basic tools and resources I need to participate in research/QI.



- I am confident in writing a research/QI question.

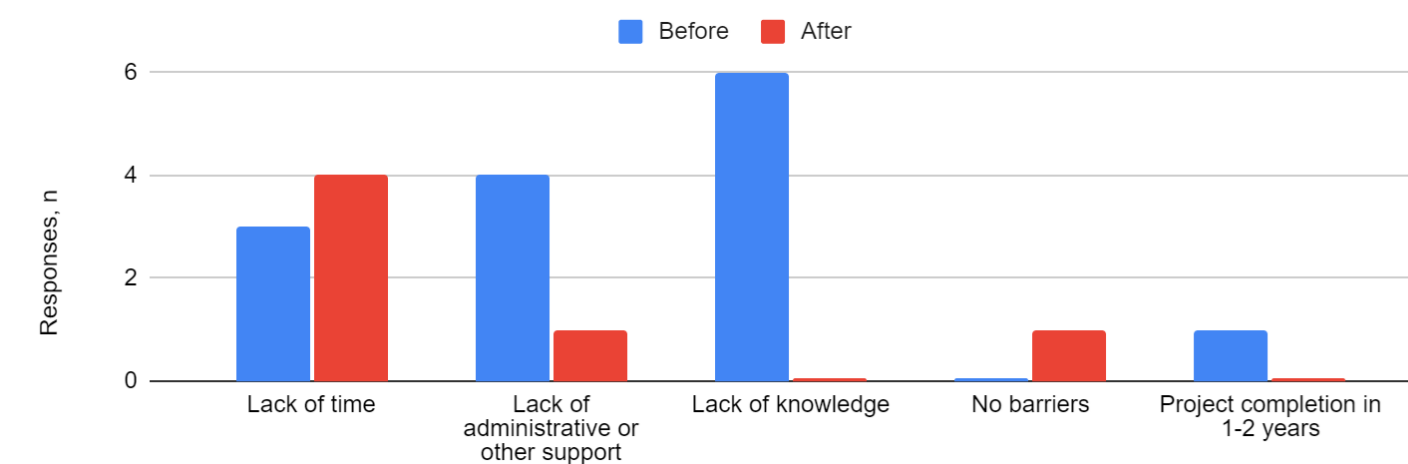


- Please indicate your knowledge level or confidence level before and after this Research Curriculum.

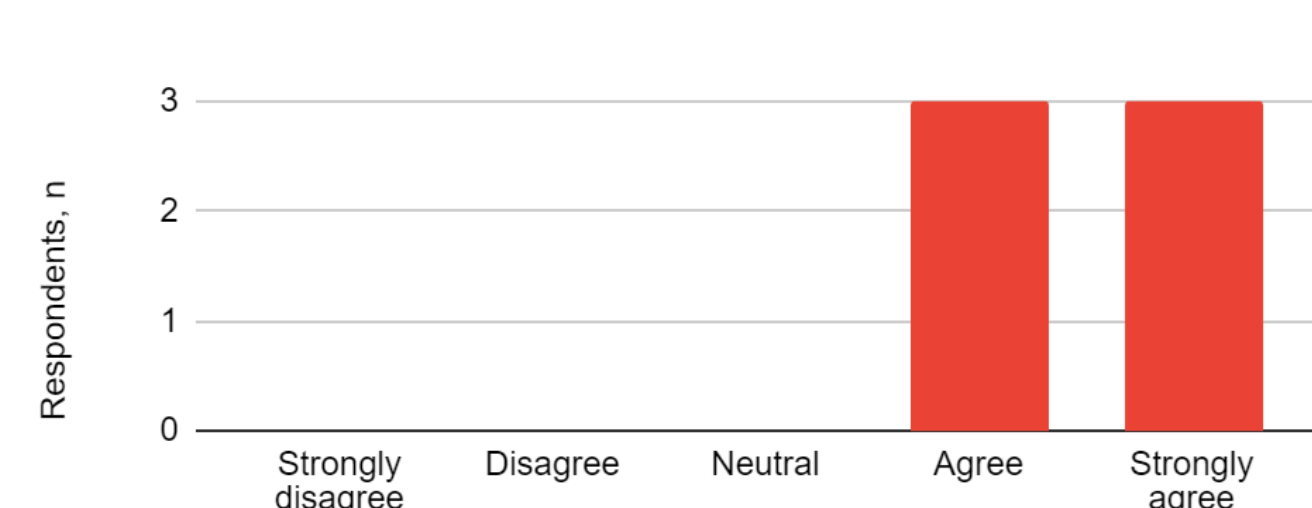


## Results

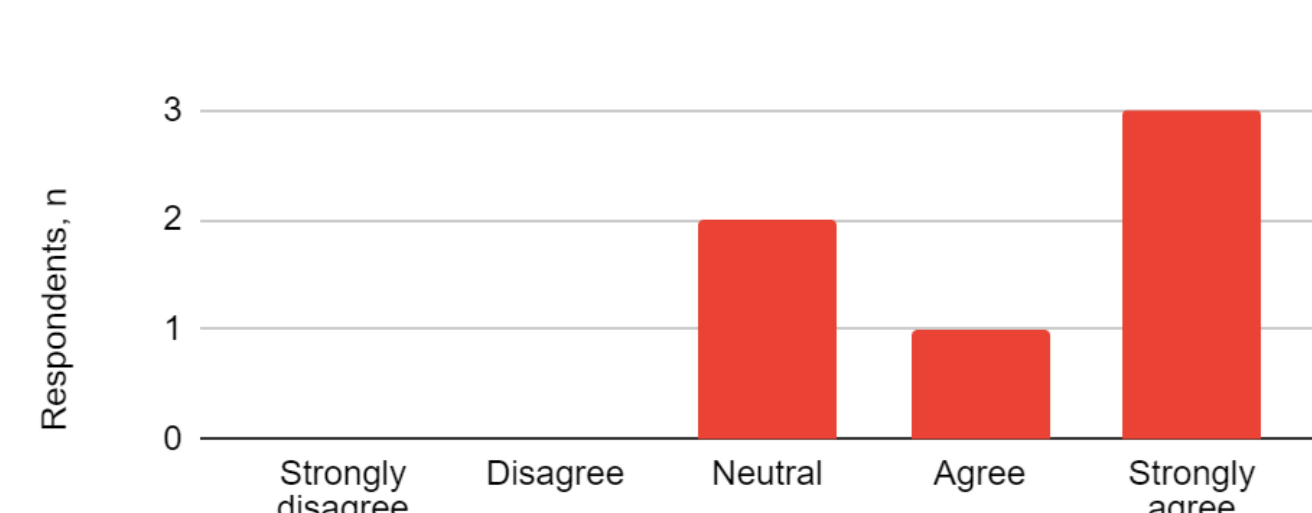
- What barriers currently exist to prevent you from doing research/QI?



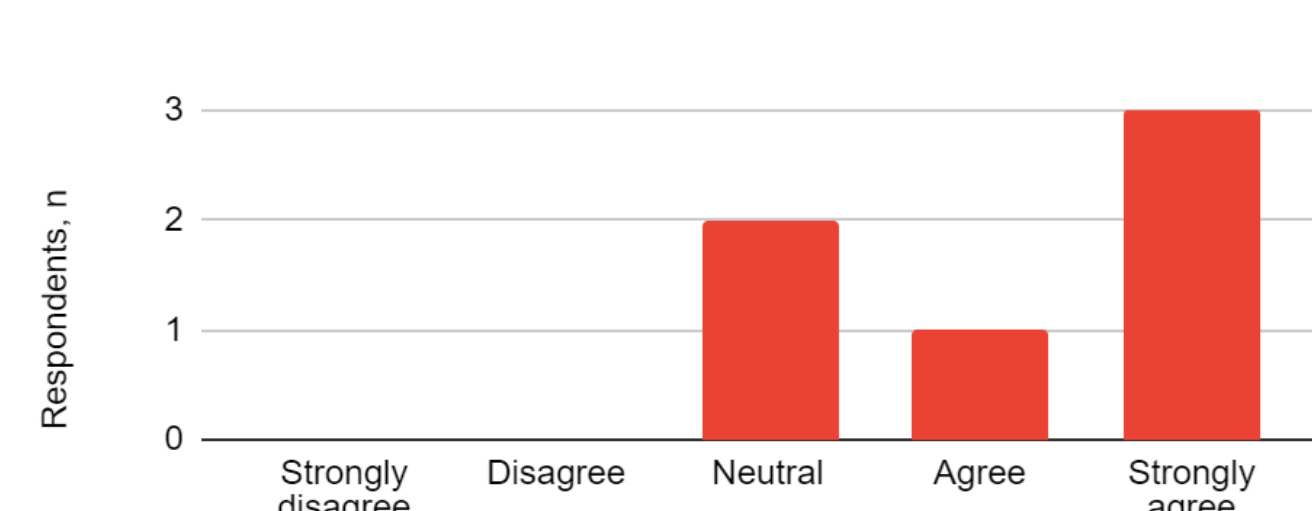
- This Research Curriculum advanced my knowledge in the importance of PM&R research/QI.



- This curriculum enhanced my effectiveness to do research/QI.



- I have a plan to participate in a research/QI study or I have a project idea as a result of this curriculum.



## Discussion

- Comparison of pre- and post-curriculum survey responses revealed:
  - Overall increased interest level in doing research/QI.
  - Overall increased subjective effectiveness in locating, appraising, and assimilating evidence from scientific studies.
  - Overall increase in having the basic tools and resources needed to participate in research/QI.
  - Overall increased confidence in writing a research/QI question.
  - Overall increased knowledge level or confidence level after the Research Curriculum.
  - Reported barriers after the Research Curriculum continue to be lack of time and lack of administrative or other support, while lack of knowledge is notably no longer a barrier. One resident noted no perceived barriers after the Research Curriculum.
- All residents agreed or strongly agreed that the Research Curriculum advanced their knowledge in the importance of PM&R research/QI.
- Majority of the residents (4 out of 6) felt the curriculum enhanced their effectiveness to do research/QI.
- Majority of the residents (4 out of 6) had an active plan to participate in a research/QI study, or had a project idea as a result of the Research Curriculum. Specifically, the residents have formed two groups and formulated two different research/QI projects to work on over the coming year.
- One resident commented, "It was very helpful to workshop ideas and solidify plans in a structured environment."
- This project was incorporated into our monthly Program Evaluation Committee (PEC) meeting to align with our residency program's operations. In the PEC, we review the project metrics, discuss barriers to success, and establish appropriate action plans.
- A scholarly activity tracking tool shared among all faculty and residents was implemented and stored in a shared drive to allow for accessibility to ongoing research projects.
- An online tool (Basecamp) was designated as a project management tool to facilitate group collaboration.

## Conclusion

Integration of a Research Curriculum into PM&R resident education can increase resident interest in research/QI, increase knowledge level, break down some barriers, and lead to active participation in research/QI projects. The use of a mix of in-person sessions, virtual sessions, and on-demand videos can assist with sustainability of this curriculum, providing flexibility during the COVID pandemic and decreasing burden on any one faculty member. The use of dedicated workshops with direct faculty mentorship can facilitate active progress in project development and advancement. Establishing a shared scholarly activity tracking tool, designating an online group project collaboration platform, and incorporating this project into the PEC are all methods which we hope will promote sustainability in the future. Implementing a research curriculum into resident education can be a first step in cultivating a culture of research.

## Acknowledgements

Thank you to my mentors Dr. Garrison and Dr. Scelza for their guidance through this project. Thank you to the UT Austin Dell Med PM&R Residents for their full participation and active engagement in this Research Curriculum.



# Enhancing Research Visibility Within Our Department and Beyond

Aaron J. Yang, MD<sup>1</sup>, David J. Kennedy, MD<sup>1</sup>, Steven Kirshblum MD<sup>2</sup>

<sup>1</sup>Vanderbilt University Medical Center Department of Physical Medicine & Rehabilitation; DK internal mentor. <sup>2</sup>Kessler Institute for Rehabilitation; SK external mentor

## Departmental Background

- There is a need for an easily accessible database to report and review clinical or research efforts such as recent publications or ongoing research projects
- There is an annual academic reporting of research efforts requested by the department chair, but this information is not easily accessed by the rest of our staff and department
- There is reduced visibility of academic efforts both internally and externally which may impact potential interdepartmental collaborative opportunities as well as faculty and trainee recruitment
- Our resident trainees are unaware of all the ongoing research in our department hence impacting potential collaborations

## Needs Assessment

- Informal survey was distributed to 12 trainees (PGY-2-PGY-4) with **10** responses received
  - **10/10** reported finding their current research project by speaking to upper-level residents
  - **7/10** identified the same single faculty member as their primary research collaborator
  - **3/10** reported working with a non-primary faculty member in our department
  - **0/10** reported any centralized database of ongoing research and clinical efforts
  - **10/10** reported that a centralized list would be very helpful for finding potential collaborators or mentors

## Objective & Desired Outcomes

- Create a research database that is easily accessible and updated by faculty members on a quarterly basis
- Database and website will be formally updated with publications by our administration on a yearly basis in concordance with our required annual academic reporting
- We hope to see increased collaboration of our faculty and residency trainees with other primary and secondary faculty members associated with our department
- Increased visibility of ongoing and completed clinical and research efforts to our department, institution, and beyond via utilization of our department website and social media channels



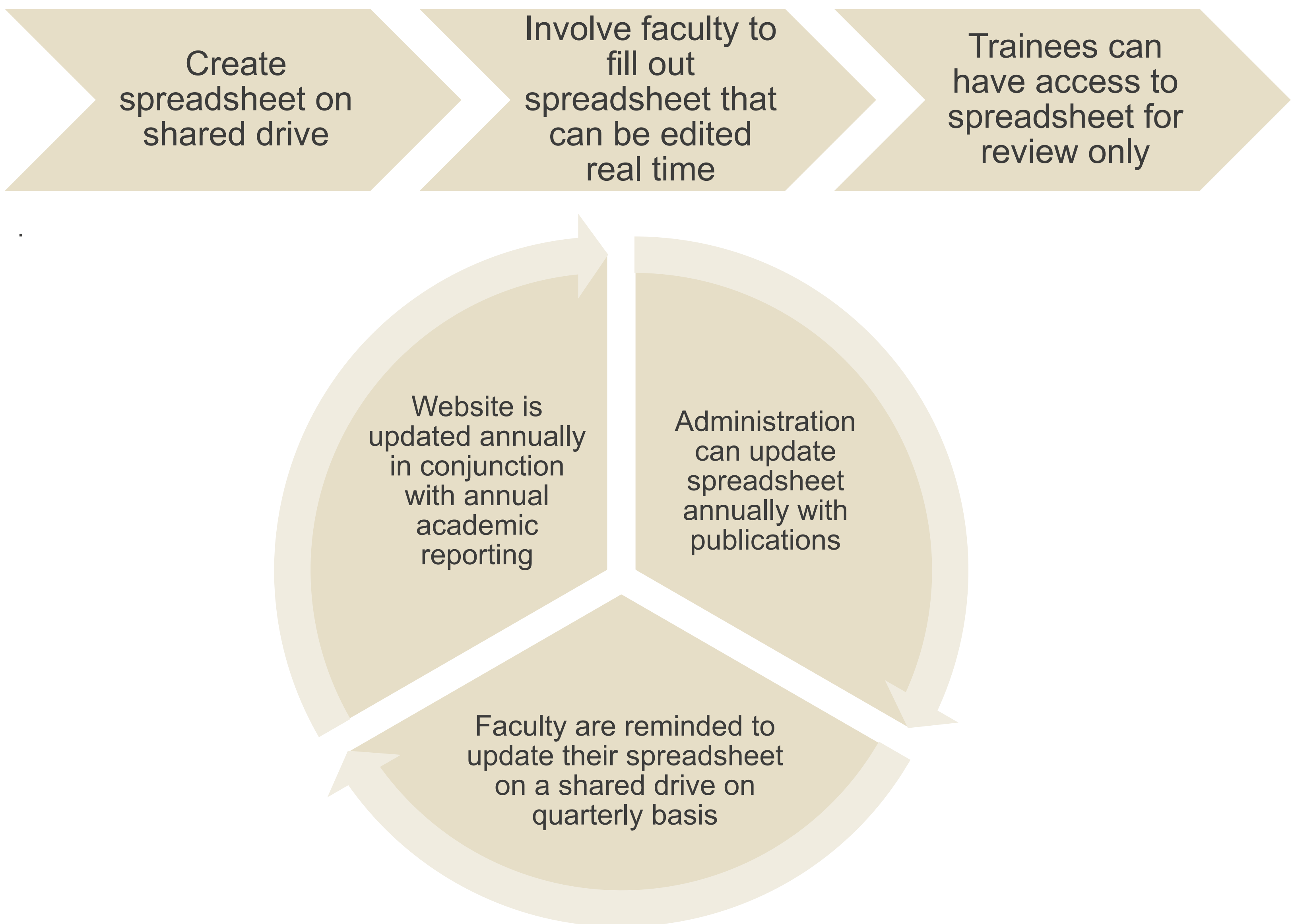
### Shared online spreadsheet

<https://docs.google.com/spreadsheets/d/1bt-Tq2kQf1Llmg15fnNOCTzc1zo5BFRJBjVdmG9vajw/edit?usp=sharing>



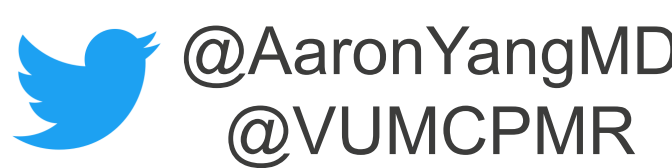
### Link to VUMC PM&R Research Website:

<https://www.vumc.org/pmr/research>



### Process of Keeping the Spreadsheet Updated

Contact Information: [Aaron.Yang@VUMC.org](mailto:Aaron.Yang@VUMC.org)



## Implementation

- Excel spreadsheet was created with appropriate categories
- Three e-mails were sent for faculty members to fill in the categories
- Once the spreadsheet was completed, this was transferred to a shareable website that can only be edited by faculty
- Trainees were given a separate link to the same spreadsheet that was able to be viewed but not edited
- Meeting was held with trainees and faculty separately to review the spreadsheet and its purpose
- Spreadsheet was modified and placed on our department website for public viewing and shared to our department social media channels (Twitter and Instagram)

## Post Intervention Assessment

- A total of **33/35** total faculty responded the call to fill out the spreadsheet
- One of the main barriers in participation by faculty was reported time needed to dedicate to resident research
- Post intervention survey was distributed to all 16 trainees (PGY1-PGY-4) with **14** responses received
  - **100%** found the spreadsheet helpful in learning about current research and future opportunities in our department
  - **10/14** planned to contact or work with an attending they had not planned to work with based on the spreadsheet (4/14 were PGY-4)

## Future Direction

- The spreadsheet can be accessed and edited by faculty at any time and reviewed by residents at their convenience
- The spreadsheet and department website posting will be updated annually with publications in accordance with annual academic reporting required by the chair in addition to reminding faculty to update this quarterly

## Conclusion

- Research visibility is important not only for the department externally but interdepartmentally
- Trainees and faculty alike benefit from discovering other research opportunities and collaborating on projects
- This project is feasible and practical to maintain moving forward