UW Medicine
DEPARTMENT OF REHABILITATION MEDICINE

Training with Insight: A QI Initiative to Educate Residents on Funding within Academic Institutions

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BACKGROUND

Program feedback has revealed that many of our PM&R residents lack a clear understanding of how their positions are funded or how financial limitations influence program design. As many of our residents pursue careers in academic medicine, this knowledge gap may negatively impact their future.

METHODS

A pre-intervention survey was distributed to UW PM&R residents (n = 30).

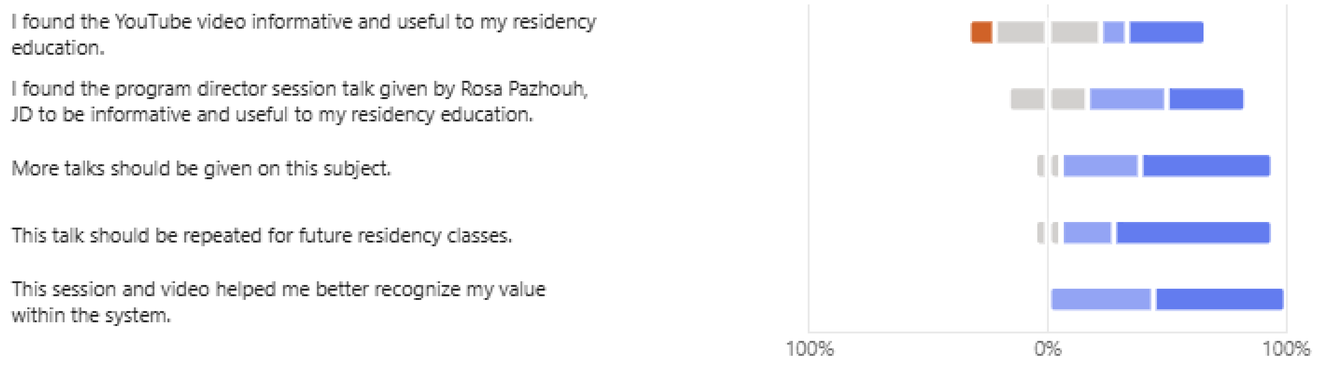
Intervention (3 components):

1. Residents were asked to view an educational video on the history of residency program funding given by Dr. Bryan Carmody, a pediatric nephrologist and associate program director: *Following The Money: A Primer on Resident Physician Compensation.*
2. Residents were given a 40-minute didactic lecture on specifics of our residency program and department funding at UW by our vice chair of finance, Rosa Pazhouh, JD.
3. Residents were given an opportunity to ask the primary author any follow-up questions related to the content.

A post-intervention survey was distributed to the same group of residents.

RESULTS

Post-intervention assessment:



CONCLUSIONS

UW PM&R residents report a lack of knowledge in understanding program and department finances while also acknowledging this education is important to their future careers. A didactic intervention consisting of an in-person lecture and online video may be a relatively simple and effective tool to address this knowledge gap. A secondary benefit may be to help residents better recognize their value within the system.

ACKNOWLEDGEMENTS

- Rosa Pazhouh, JD for extensive knowledge and didactic lead
- Bryan Carmody, MD for excellently produced, publicly available online education
- Leslie Morse, DO, for external mentorship

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Creation of a Financial Literacy Curriculum for Physical Medicine and Rehabilitation Residents

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University of Colorado Physical Medicine and Rehabilitation

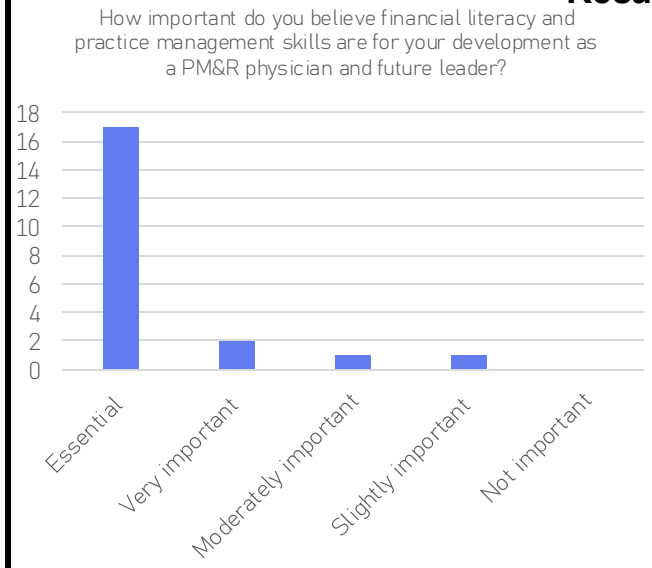
Background

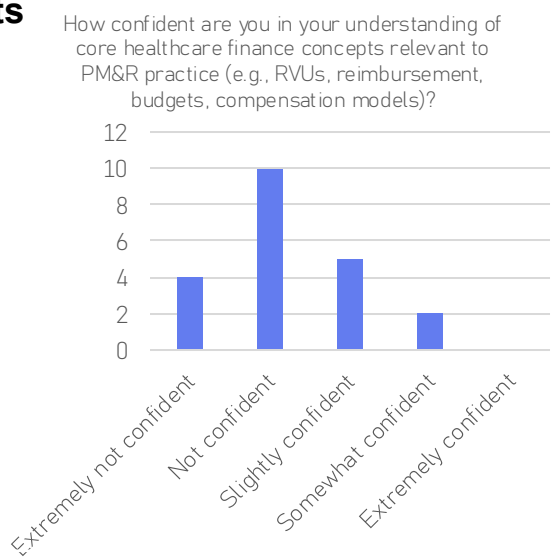
Within the University of Colorado's Physical Medicine and Rehabilitation (PM&R) residency program, there is currently no formal training in healthcare finance or financial leadership. As healthcare continues to evolve, future physiatrists must be prepared not only to provide excellent patient care but also to understand and navigate the financial frameworks that support clinical practice.

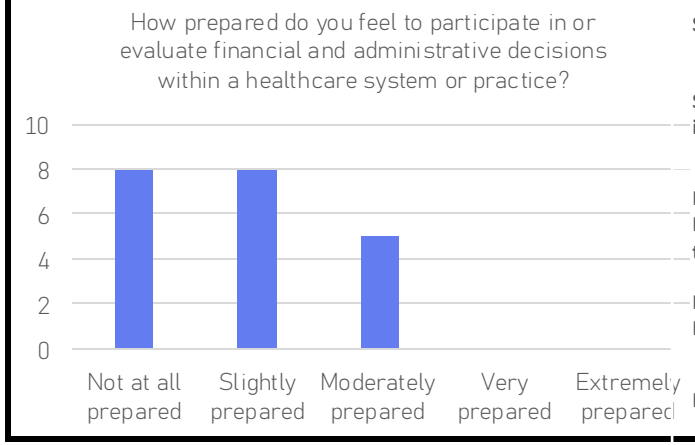
Methods

To better understand the current knowledge level and perceived gaps in healthcare finance literacy, a cross-sectional needs assessment survey was administered to all residents in the University of Colorado PM&R Residency program. The anonymous survey was aligned with ACGME PM&R milestones including Systems Based Practice, Practice Based Learning and Improvement, and Professionalism. The survey assessed residents' self-reported confidence in healthcare finance concepts, familiarity with billing and coding, preparedness to participate in financial and administrative decision-making, perceived importance of healthcare finance topics, and preferred learning formats.

Results







ACGME Domain	Curriculum Focus
SBP3 – System Navigation	Practice models, healthcare economics
SBP4 – Physician Role in Health Care Systems	RVUs and productivity, billing and coding, budgeting and compensation
PBLI2 – Reflective Practice and Commitment to Professional Growth	Financial self-assessment, applied learning
PROF1 – Professional Responsibility	Ethical stewardship of healthcare resources
PROF3 – Accountability	Participation in administrative and financial decisions

Conclusions

Residents overwhelmingly view financial literacy as essential, yet report low confidence, limited familiarity with billing/coding, and poor preparedness for financial decision-making, indicating a clear and actionable educational gap. Residents preferred learning through interactive workshops, case-based discussions with real world examples, and small group sessions with faculty mentors.

Financial Literacy Curriculum Overview

A longitudinal, milestone-aligned financial literacy curriculum was developed for PM&R residents. The curriculum will be delivered through interactive, case-based workshops, small-group faculty-led sessions, and asynchronous modules. Core topics include healthcare economics, RVUs and productivity, billing and coding fundamentals, budgeting and strategic planning, compensation models, and value-based care. Curriculum objectives align with ACGME Systems-Based Practice (SBP3–4), Practice-Based Learning and Improvement (PBLI2),and Professionalism (PROF1–2)milestones. Outcome measures will focus on assessing resident confidence, financial decision-making readiness, and leadership preparedness.

Using EPIC Fast Pass to Reduce No-Shows in Toronto Rehab Outpatient Clinics

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Background/Problem Statement

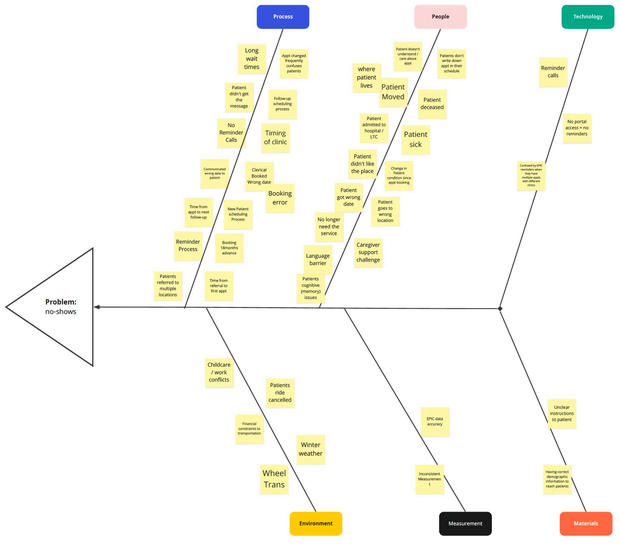
- Rehabilitation outpatient clinics experienced a high no-show rate of around 15% between April and June 2024.
- Missed appointments led to unfilled clinic slots.
- Clinical resources were not fully utilized.
- Patients faced extended wait times.

Root Cause Analysis

•Delayed processing of cancellations due to voicemail backlogs

•Inefficient waitlist workflow preventing timely backfilling

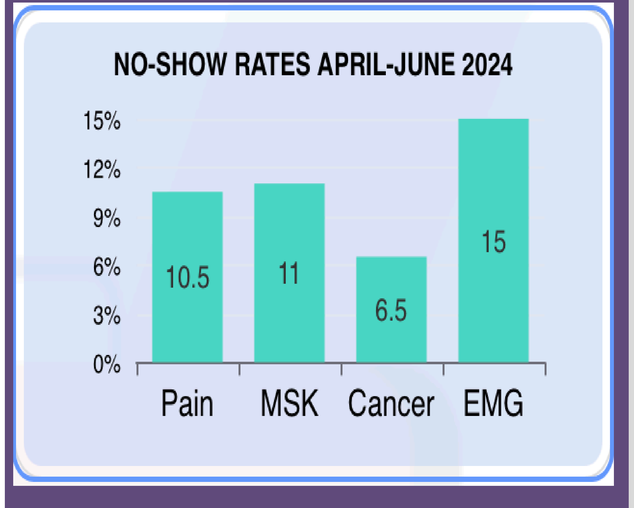
•Impact: Increased administrative workload and empty appointment slots causing delayed patient care



Aims

- Reduce no-show and late-cancellation related unused appointment slots by 20%
- Timeline: 3–6 months
- Scope: Toronto Rehab outpatient clinics

Baseline Data



Methods: PDSA Cycle

PLAN:

- Conducted fishbone analysis with clinicians and operational staff
- Identified root causes of missed appointments
- Analyzed workflow barriers

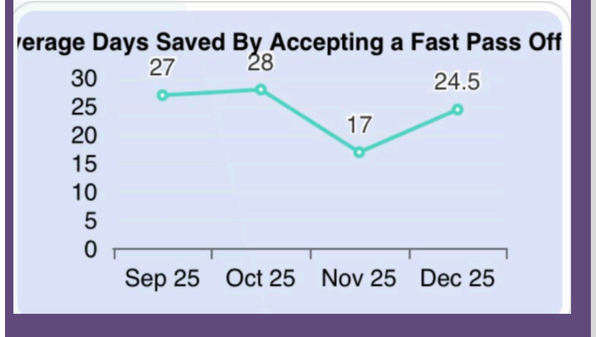
DO:

- Selected EPIC Fast Pass intervention
- Provides real-time appointment scheduling choice to patients
- Automated waitlist management through MyUHN portal
- Pilot clinic: UC Cancer Physiatry (baseline no-show rate 6%)
- Chosen as a low complexity pilot to build UHN Digital Technology before scale up

Primary Metric:

- Average number of days reduced to appointment when patient accepted Fast Pass offer

Results



- Patients who accepted Fast Pass offers received appointments 24.5 days sooner on average
- Data from October-December 2025
- Pilot demonstrated operational feasibility
- Measurable patient benefit confirmed

Key Findings

- **Success Metrics: 24.5 days average reduction**
- Real-time visibility achieved, automated management operational, reduced administrative burden
- Patient Benefits: Earlier care, improved experience, empowered self-scheduling
- System Benefits: Better capacity utilization, reduced empty slots, scalable solution, evidence-based improvement

ACT: Next Steps

- Pilot Success - Feasibility confirmed, 24.5 days earlier access
- Scale to High-Volume Clinics - UC Pain, MSK Physiatry, Interventional Physiatry, Neurophysiatry
- Continue Readiness - Standardize templates, enhance waitlist processes
- Enhanced Monitoring - Track utilization, no-show rates, patient satisfaction

Conclusion

- EPIC Fast Pass pilot successfully demonstrated operational feasibility and measurable patient benefit
- Participants received appointments 24.5 days sooner on average
- Scale-up to higher-volume clinics with greater no-show burden is underway

Gathering Objective Data on a Newly Implemented Acute Care Physiatry Consult Service

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Background

Historically, MUSC lacked physiatry presence, leaving hospitalized patients with functional impairments without consistent access to specialty consultation. Over the past three years, a PM&R division was established, with 12 physiatrists hired and comprehensive inpatient and outpatient services developed. This growth enabled the launch of an inpatient consultation service at the main acute care hospital in December 2023. Although early feedback from referring teams was positive, objective data on service utilization and outcomes were lacking.

Prior retrospective investigations of inpatient physiatry consult services have characterized utilization patterns and suggested associations between early consult timing and shorter hospital length of stay or enhanced functional outcomes in specific populations such as trauma and TBI patients. Other studies have illustrated increased referral rates with dedicated service models and potential benefits in downstream rehabilitation LOS when PM&R consultation was introduced into burn care programs. These studies provide useful benchmarks for utilization and early outcomes as we interpret our own service's performance, even though controlled efficacy data remain limited.

This QI project aimed to establish baseline metrics to characterize service performance and guide future optimization.

METHOD

A retrospective observational QI analysis was conducted of all inpatient PM&R consults performed between March 1 and September 1, 2025, at MUSC's primary acute care hospital. All patients seen by the consult team (M–F, 8 AM–5 PM) were identified through Epic with support from departmental analytics and quality staff. Data were extracted on consult volume, timing (admission-to-consult interval), AM-PAC functional scores, discharge disposition, and hospital length of stay. Sensitivity analyses excluding patients with declining AM-PAC scores were performed to assess robustness of functional trends.

RESULTS

A total of 283 inpatient PM&R consults were completed during the study period. Median time from hospital admission to PM&R consult was 4 days, and median hospital LOS was 10 days. Functional status demonstrated a median improvement of +1 point on the AM-PAC raw score from initial to most recent assessment. A subset of patients experienced functional decline, likely reflecting medical complexity or complications during hospital course; exclusion of these patients resulted in a modest increase in median functional improvement.

Discharge destinations included inpatient rehabilitation (46%), home with services (16%), and home without services (15%), with smaller proportions discharged to skilled nursing facilities, LTACHs, hospice, or transferred to another acute care facility.

Figure 1. Distribution of time from hospital admission to initial inpatient PM&R consultation. Most consults occurred within the first week of hospitalization, though a right-skewed distribution indicates delayed referral in a subset of patients.

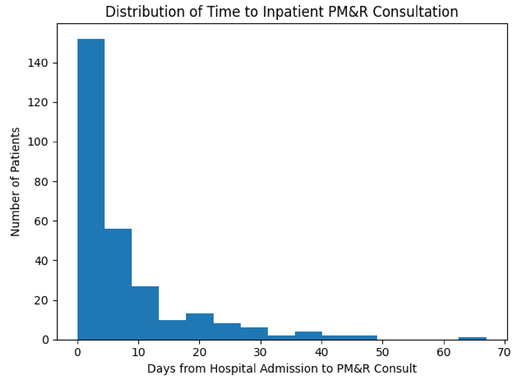


Figure 2. Distribution of discharge destinations among patients receiving inpatient PM&R consultation. The majority were discharged to acute inpatient rehabilitation facilities, followed by discharge home with or without home health services.

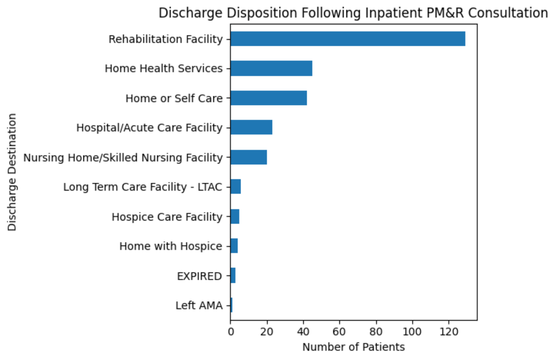
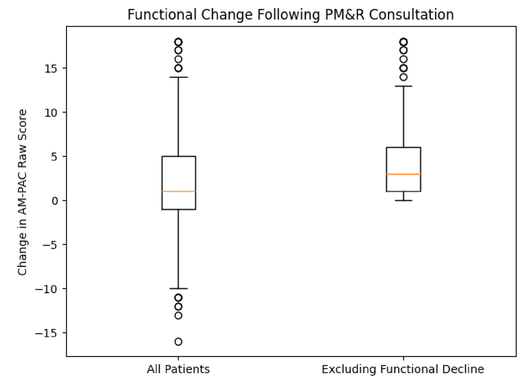


Figure 3. Change in AM-PAC raw scores following inpatient PM&R consultation. Exclusion of patients with functional decline, likely reflecting medical complexity or complications during the hospital course, resulted in a higher median functional improvement, supporting the robustness of observed gains.



CONCLUSIONS

Early implementation of an acute care physiatry consult service demonstrated consistent utilization, timely consultation, measurable functional gains, and a high proportion of rehabilitation focused discharge destinations. These findings support the value of physiatry integration into acute inpatient care and provide objective baseline data.

SUMMARY

This QI project represents an essential first step in evaluating the utility and impact of a newly established acute care physiatry consult service at a large academic medical center by establishing normative benchmarks.

Direct comparisons between inpatient physiatry consult services are limited by heterogeneity in patient populations, outcome measures, and service models. However, prior retrospective studies have described utilization patterns and suggested associations between earlier PM&R consultation and improved functional outcomes or reduced length of stay in select populations. In this context, the median consult timing of four days and median acute care length of stay of ten days observed in our cohort fall within ranges reported in the existing literature. Additionally, the high proportion of patients discharged to inpatient rehabilitation aligns with previously described roles of physiatry consultation in facilitating rehabilitation-focused discharge planning. While causality cannot be inferred, these comparisons provide important context for interpreting early service performance and identifying targets for future quality improvement cycles.

Systematic collection of objective metrics provides critical insight into consult utilization patterns, patient outcomes, and operational feasibility. Sensitivity analyses indicate that observed functional improvements are robust, even among medically complex patients. The results highlight opportunities for earlier consult triggers and support continued institutional investment in acute care physiatry. Additionally, these findings lay the groundwork for more formal evaluations of service efficacy and guide long-term planning to sustainably integrate physiatry into the inpatient care model in future QI cycles.

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UHealth Jackson Rehabilitation Care
CHRISTINE E. LYNN REHABILITATION CENTER FOR THE MIAMI PROJECT TO CURE PARALYSIS

Timely Transitions: Improving Operational Discharge Flow From Acute Inpatient Rehabilitation

Diana Molinares, MD

INTRODUCTION

In acute inpatient rehabilitation centers (AIR) late discharges lead to a cascade of operational inefficiencies and dissatisfaction at multiple levels. The institution goal is to have 80% of the discharges happen before 2:00pm.

The barriers identified included:

- Lack of clarity of how to address the problem
- Lack of coordination among stakeholders
- Breaks in communication

METHODS SECTION

Desired Outcomes:

• Reduce the number of discharges occurring after 12:00 PM

• Increase timely bed availability for new admissions

• Improve patient and staff satisfaction across the rehabilitation and referring acute hospital teams

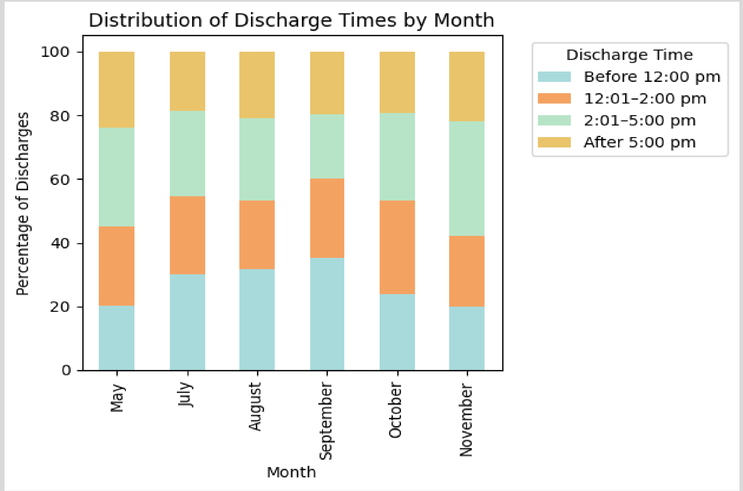
A 1-month data collection phase was conducted to document discharge times and contributing delays.

- May served as baseline – 44.7% discharge before 2pm
- Family Pick up time was the most common cause of delays
- Readiness of medications and durable medical equipment (DME) and communication breakdown were also identified to cause delays.

Interventions:

- Stakeholder task force and identified barriers in each areas
- Home Health, DME and medication orders streamline with residents
- Nurse discharge coordinator position created

Month	Before 12:00 pm	12:01–2:00 pm	2:01–5:00 pm	After 5:00 pm	Bemfore 2pm	Δ vs May
May	20.30%	24.70%	31.20%	23.80%	44.70%	
July	30.10%	24.40%	26.70%	18.80%	54.50%	*9.8%
August	31.80%	21.40%	26.00%	20.80%	53.20%	*8.5%
September	35.30%	24.80%	20.30%	19.60%	60.10%	*15.4%
October	24.00%	29.30%	27.30%	19.30%	53.30%	*8.6%
November	20.00%	22.10%	35.90%	22.10%	42.10%	–2.6%



RESULTS & DISCUSSION

This initiative demonstrated that targeted discharge workflow interventions can significantly improve discharge timing in an acute inpatient rehabilitation setting.

Compared with baseline, the proportion of discharges occurring before 2:00 PM improved consistently during the intervention period, peaking at a 15.4 percentage-point increase in September.

Earlier discharge timing reflects:

- Improved interdisciplinary coordination
- More proactive medication, therapy, and transportation planning

The decline observed in October and November occurred during a period of significant staffing changes, including loss of two attending faculty members resultant increase in patient census per team. Increased competing clinical demands, limiting the ability to consistently execute early discharge workflows

Conservative modeling comparing May to September discharge timing estimates approximately $20,790 in monthly system savings, assuming ~120 discharges per month and 0.5 patient-day saved per early discharge.

(AIR: ≈ $6,930/month in reduced variable costs (≈$750 per patient-day) + Acute care hospital: ≈ $13,860/month from improved bed availability and reduced downstream delays (≈$1,500 per patient-day))

These figures reflect variable cost savings only and exclude additional financial upside from reduced ED boarding, and avoidance of delayed or canceled admissions/procedures.

CONCLUSION

Targeted discharge workflow interventions significantly improved discharge timing, increasing discharges before 2:00 PM and enhancing inpatient rehabilitation bed availability.

Peak performance demonstrated that timely discharges are achievable when interdisciplinary coordination and adequate staffing are aligned.

Periods of faculty attrition and increased team census were associated with reduced discharge efficiency, highlighting the importance of workforce capacity in sustaining operational gains.

Improving Bowel Management in Pediatric Patients with Spina Bifida

Unoma Akamagwuna, MD[1,2] Blake Meyer, MD[1,3], Kathleen Hosek, MS[6], Justine Kasay[6], Susan Jarosz, DO[1,4], Ellen Fremion, MD[1,5]

1. Baylor College of Medicine; 2. Physical Medicine and Rehabilitation; 3. Pediatrics; 4. Urology; 5. Internal Medicine and Pediatrics
6. Texas Children's Hospital Department of Surgery

Introduction

- Children with spina bifida are often impacted by neurogenic bowel, resulting in constipation and unpredictable bowel leakage.[1] Pediatric patients with spina bifida have high rates of bowel incontinence nationally (Figure 1).[2]
- Poor bowel continence has been associated with decreased quality-of-life, decreased school attendance, poor mental health and lower rates of employment.[3] It's also associated with urinary incontinence, UTIs, VP shunt malfunction, skin breakdown, hemorrhoids, and anal fissures – leading to increased hospital use.[3]
- At Texas Children's Hospital, bowel management was overseen by Urology providers, however, for staffing reasons bowel management care transitioned to PM&R. This project aims to transition the bowel management responsibilities to PM&R providers while aligning care with the Spina Bifida Association (SBA) guidelines.

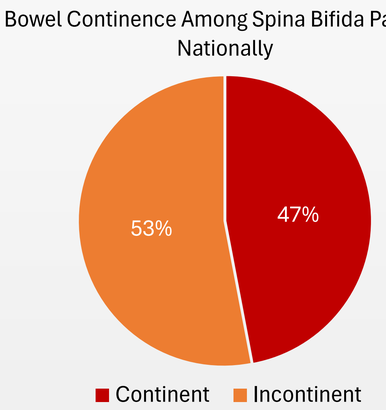


Figure 1: Bowel continence of children ages 5-18, defined as less than one incident of fecal leakage per month, according to the National Spina Bifida Patient Registry (NSBPR) from 2009 to 2022.[2]

Methodology

Baseline data on bowel continence, quality of life, and bowel regimens were collected from the National Spina Bifida Patient Registry (NSBPR) between June 2023 and May 2024.. To assess practice variability and workflow barriers, surveys of providers and nursing staff were administered from December 2024 through January 2025. Findings informed development of a standardized bowel management algorithm and targeted clinician education delivered between March and August 2025 through didactic sessions and hands-on training.

Concurrent interventions included root cause analysis, development of a key driver diagram, creation of standard operating procedures for a PM&R-led bowel follow-up clinic, and refinement of screening and documentation processes based on provider feedback. Patient- and caregiver-facing educational materials were developed in parallel. Program impact was evaluated using process measures (screening completion and algorithm adherence) and outcome measures including provider comfort, patient satisfaction, bowel continence outcomes, and Neurogenic Bowel Dysfunction scores, with results used to guide ongoing refinement.

Results

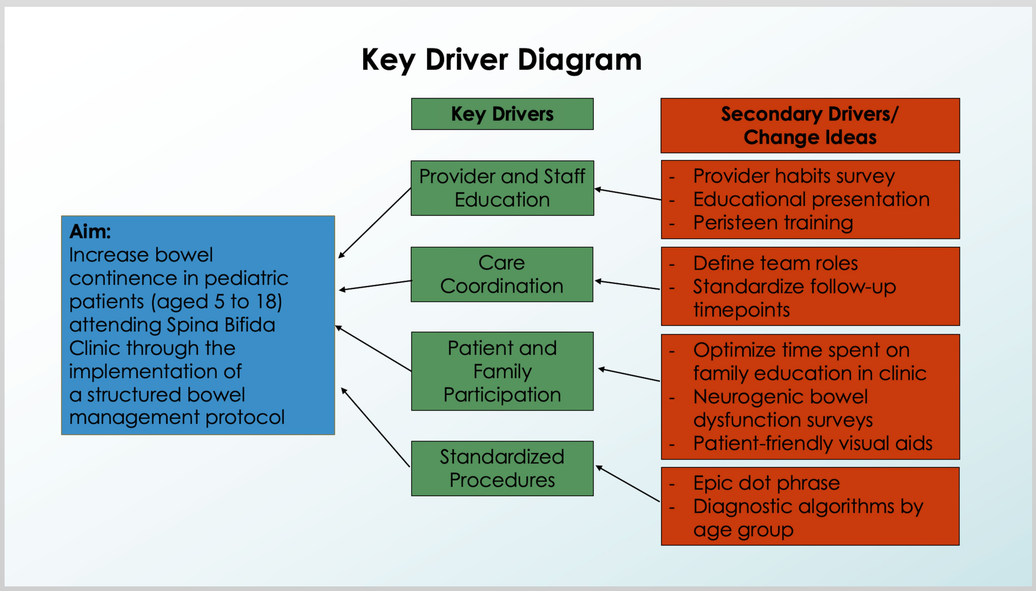


Figure 2: Key driver diagram evaluating specific factors impacting our aim to increase bowel continence. Change ideas serve as targets for future PDSA cycles.

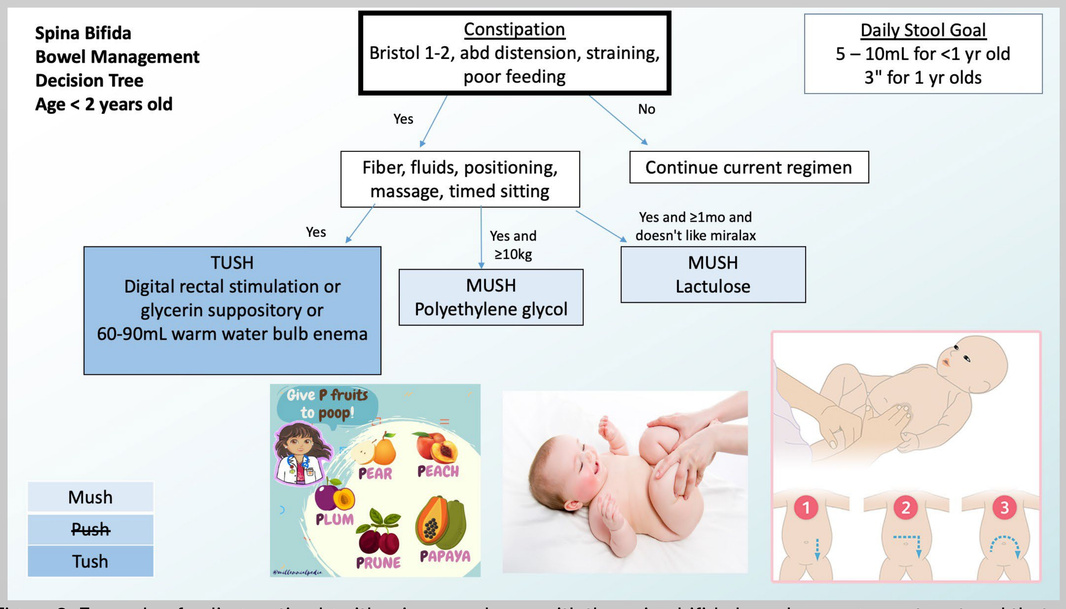


Figure 3: Example of a diagnostic algorithm in accordance with the spina bifida bowel management protocol that will be disseminated to providers in clinic for the next PDSA cycle. This algorithm focuses on ages two and younger.

Interventions

PDSA 1: Baseline Assessment & Stakeholder Engagement
June 2023 – January 2025

Goal: Establish baseline bowel outcomes and understand current practice variability	Collected baseline data from NSBPR (continence rates, QoL, bowel regimens)	Developed and administered provider and nurse surveys to assess practice habits	Identified variability in bowel management practices	Used findings to inform algorithm development and educational needs

PDSA 2: Algorithm Development & Education
March 2025 – August 2025

Goal: Develop and disseminate a standardized bowel management protocol	Created standardized bowel management algorithm	Delivered education via Urology Grand Rounds (March 2025) and PM&R noon conference (May 2025)	Transitioned bowel management oversight to PM&R	Provider knowledge and comfort (post-education surveys) Initial feedback on feasibility and clarity of algorithm	Refined education content. Planned additional training modalities and recorded sessions for onboarding

PDSA 3: Workflow Optimization & Training
April 2025 – July 2025

Goal: Improve clinic workflow and provider readiness for protocol implementation	Conducted hands-on training for PM&R providers and nurses on transanal irrigation (device manufacturers and nurse educators)	Developed SOP for PM&R bowel follow-up telemedicine clinic	Provider-reported confidence with bowel management tools	Modified screening and documentation processes

PDSA 4: Implementation & Process Refinement
May 2025 – August 2025

Goal: Integrate protocol into routine clinical care	Implemented standardized screening in general Spina Bifida clinic	Launched telemedicine clinic	Replaced time-intensive dot phrase with intake form based on provider feedback	Comparison of intake forms completed vs clinic volume • Satisfaction survey initiation (July 2025)

PDSA 5: Evaluation & Sustainment
July 2025 – November 2025

Assess effectiveness and support sustainability	Implemented patient/caregiver satisfaction surveys	Developed bilingual, patient-friendly educational materials	Planned post-education surveys	Provider/nurse comfort and understanding of algorithm	Updates and changes to algorithm based on feedback

Results and Conclusions

Question	Pre N = 7	Post N = 8
How comfortable do you feel with bowel management in SB?	71% Somewhat comfortable 29% Very Comfortable	75% Somewhat comfortable 13% very comfortable 1% not at all comfortable
Do you have a systematic approach to bowel management	71% Yes 29% No	63% Yes 38% No

Figure 4: Provider Survey Pre and Post Intervention

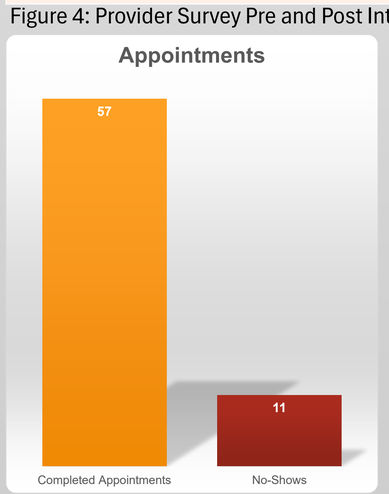


Figure 5: Clinic Appointment Outcomes

- This quality improvement initiative established core infrastructure for standardized bowel management in a multidisciplinary Spina Bifida clinic. Although provider comfort with a bowel management algorithm and perceptions of a systematic process did not change significantly, the project successfully launched a weekly PM&R-led telemedicine bowel clinic, onboarded and educated staff, and implemented standardized screening tools and patient education materials.
- Next steps include integrating EHR-based pre-visit assessments, routinely administering standardized Neurogenic Bowel Dysfunction measures in the telemedicine clinic, and developing a structured onboarding and training process for the bowel management algorithm to support sustainability and outcome measurement.

Acknowledgements/References

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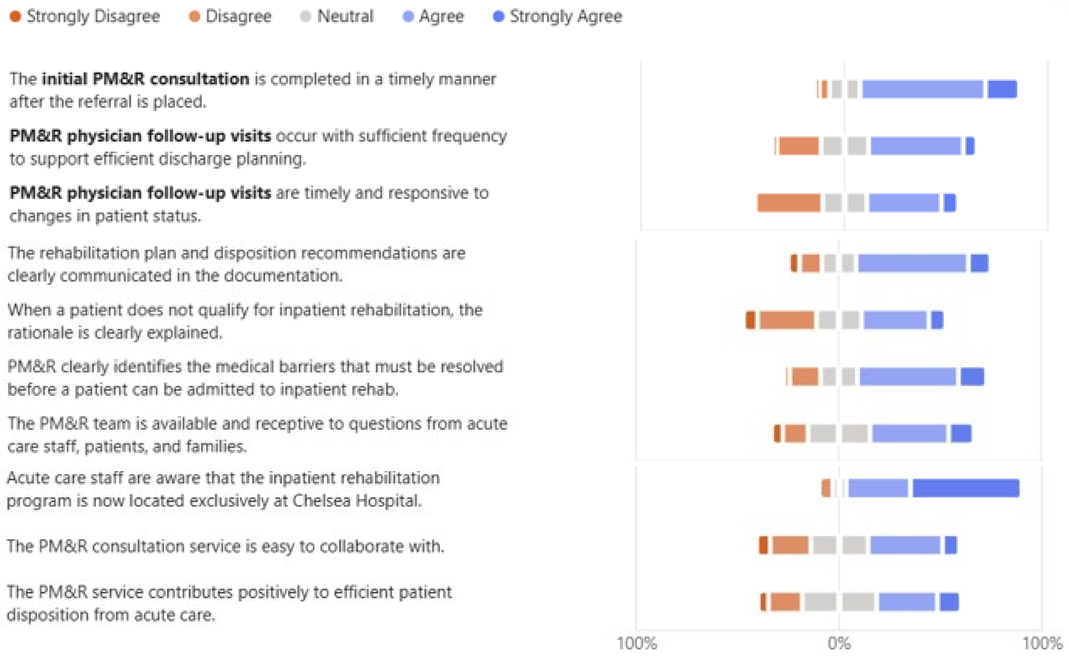
Improving Physical Medicine and Rehabilitation Consultation Services

Cody C Andrews, MD
Internal Mentor: Ted Claflin, MD; Joshua Startup, MD
External Mentor: Holly Pajor, DO

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

PHYSICAL MEDICINE AND REHABILITATION

Background



Satisfaction with PM&R consultation services at Michigan Medicine has been poor over the past at least several years. In general, it is thought that PM&R consultation provides unclear recommendations and is difficult to collaborate with by members of the acute care teams.

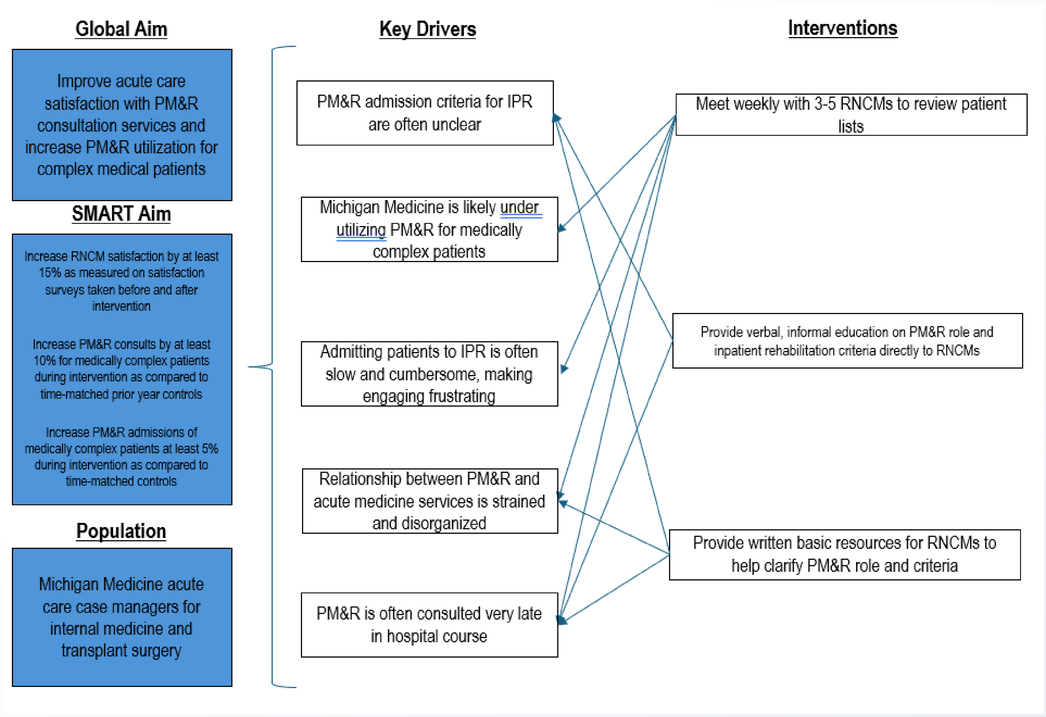
Do

Despite initial enthusiasm with case management leadership, and potential participants, only one case manager was able to participate. A free form questionnaire targeting barriers to participation was provided. Time constraints were identified as the primary limiting factor on a questionnaire.

Next Steps

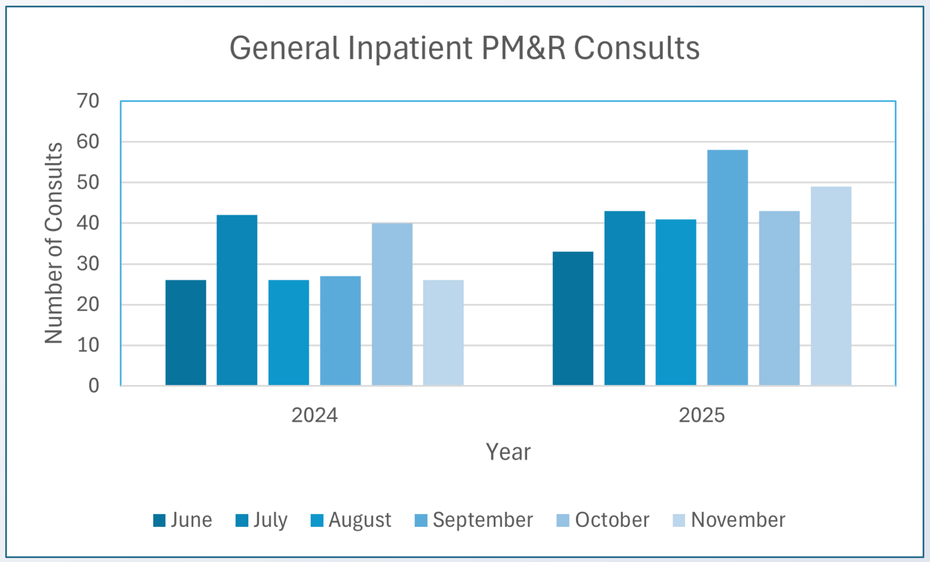
- Follow up on current sentiments toward PM&R consultation services
- Currently meeting with acute care therapy leadership to evaluate potential for creation of a solid organ transplant consult line with dedicated therapy staffing
- Work with case management leadership to identify improvements that are feasible within time demands

Plan



In collaboration with ongoing efforts to optimize communication with primary teams, a project focusing on increasing physician footprint with acute case managers was designed. A single physician (Andrews) was the primary general consultation physician for the entire 2025-26 academic year, providing greater consistency with communication style and availability.

STUDY



Overall general consults increased significantly during period of single physician staffing even though original project was unable to be fully implemented.

Centralization of Intra-Departmental Physical Medicine and Rehabilitation Outpatient Referrals

Allison Bean, MD, PhD[1], Christopher Standaert, MD[1], Briana Kelly, MOT, OTR/L[1], Adam Stein, MD[2]

[1] University of Pittsburgh/UPMC, [2] Zucker School of Medicine at Hofstra/Northwell

INTRODUCTION

- ***The Department of Physical Medicine and Rehabilitation (PM&R) at UPMC:***
  - More than 50 outpatient providers
  - ~10 clinic locations within 40-mile radius
  - Over 450 intra-department referrals per year
  - Scope of practice highly variable between providers
  - Average wait time to see new provider for evaluation: 34±36 days
    - Varies widely between providers (average range: 4 to 124 days)

- ***Key responses from pre-intervention survey (n=47 responses):***

- ***Additional challenges identified by survey respondents:***
  - No centralized method for scheduling
  - Difficulty identifying/recalling appropriate staff to contact
  - Several steps required to identify best provider based on location/availability
  - Inability for staff to schedule patients at other clinical locations
  - Patients unable to reach staff to schedule
  - Long wait times/lack of providers for some services

OBJECTIVE & GOALS

Objective:
- Develop a centralized method for intra-departmental PM&R referrals for outpatient specialty services.

Goals:
- Reduce administrative/scheduling burden on referring PM&R providers
- Reduce time between referral and patient appointment with new provider

INTERVENTION

RESULTS

- Number of referral orders placed:

Graph showing average time to see new provider compared with previous

Graph showing responses to question: the Epic based referral system has made it easier for me to refer patients to my PM&R colleagues

Comments from providers about the new referral workflow:

CHALLENGES

- Some providers have struggled to adapt to new system ("Old habits die hard")

- System-wide Epic rebuild scheduled for May 2026 prevented ability to make updates to referral order and pool assignments due to freeze.

FUTURE DIRECTIONS

- Interim feedback from providers will enable refinement of referral orders post-launch

- Knowledge gained from intra-departmental referral process will be applied to increase efficacy of inter-departmental referrals received from non-PM&R colleagues

UPMC | REHABILITATION INSTITUTE

Streamlining Botulinum Toxin Visits in Pediatric Rehabilitation Clinics

Priya D. Bolikal MD[a,b], Brad G. Kurowski MD, MS[a,b,c], Jared Placeway MD[d]

[a]Division of Pediatric Rehabilitation Medicine, Cincinnati Children's, Cincinnati, OH, [b]Departments of Pediatrics and Neurology & Rehabilitation, University of Cincinnati College of Medicine, Cincinnati, OH, [c]James M. Anderson Center for Health Systems Excellence, Cincinnati Children's, Cincinnati, OH, [d]Department of Physical Medicine and Rehabilitation, MetroHealth / Case Western Reserve University, Cleveland, OH

Objective / SMART Aim *(Plan)*

SMART Aim Statement: Decrease median botulinum toxin procedure visit time from 42 minutes to 30 minutes by December 2025

Secondary goal: Improve or maintain physician and nurse satisfaction with clinic flow.

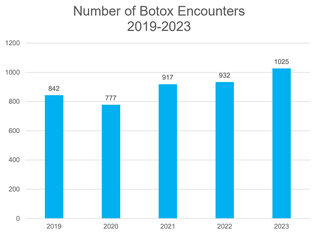
Global Aims:

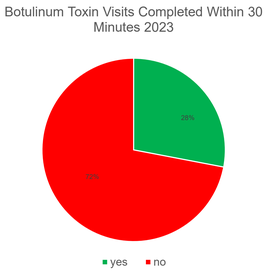
- Improve access
- Improve physician, nursing, and patient experience
- Minimize wasted time during visits
- Optimize safety
- Maximize time spent on patient care
- Increase efficiency

Background *(Plan)*

- Botulinum toxin injections are a commonly performed procedure in the division of Pediatric Rehabilitation Medicine for treatment of spasticity.

- Our growing patient population has led to access challenges and the need to improve efficiency in outpatient clinics.





Clinic structure has remained unchanged for decades.

General rehab clinics consist of a mix of new visits, follow up visits, and botulinum toxin injections.

New visits are scheduled for 60 minutes, follow up visits are 30 minutes, and botulinum toxin procedure visits are scheduled for 30 minutes.

Clinics frequently run behind and can feel chaotic for providers. Additionally, patients may experience long wait times.

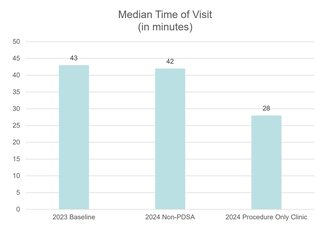
Prior Work *(Plan)*

Using principles of LEAN, we aimed to reduce procedure visit times, and performed pilot in 2024 with a single provider (Provider A) within our division.

Process Improvement Summary

Problem	Prior Process	New Process (PDSA)	Results
Procedure start time is delayed due to clinic running behind	Procedure visits were mixed into general clinics with other visit types.	Creation of "procedure clinics" and "Follow up/New visit clinics" in order to schedule patients with similar needs (botulinum toxin injection vs. follow up) together to take advantage of staff flow	Qualitative feedback showed an increase in staff satisfaction including physician, nursing, and child life. Quantitative results showed a decrease in injection visit time.
Time needed to prepare medication was inconsistent and sometimes longer than the procedure itself	Medication preparation room was not organized in a user-friendly way Only one nurse was assigned to clinic regardless of the number of procedures scheduled	Medication preparation room received a 5S reorganization Two nurses were assigned to procedure clinics	Qualitative feedback showed an increase in staff satisfaction. Quantitative results showed a decrease in injection visit time.

Pilot Results *(Plan)*



Data from pilot clinics (n=4 clinics), median procedure visit time decreased from 42 minutes to 28 minutes, and 50% more procedures were able to be scheduled during the 4-hour clinic period.

Subsequent PDSA, moved to "procedure hour" within a larger clinic so patients could receive follow up appointment and procedure on the same day.

This resulted in a mean procedure time of 34 minutes.

Method *(Do)*

For this cycle, we recruited a second pediatric rehabilitation provider (Provider B) to participate in pilot "procedure hour" clinics

Converted ~3 general rehabilitation clinics per month for each provider to pilot clinic templates.

	Provider A Template	
8:00	40 min follow up	
8:20		
8:40	40 min follow up	
9:00		
9:20	40 min follow up	
9:40		
10:00	40 min follow up	
10:20		
10:40	20 min break	
11:00	30 min Procedure	30 min Procedure
11:30	30 min Procedure	30 min Procedure

	Provider B Template
8:00	40 min follow up
8:20	
8:40	40 min follow up
9:00	
9:20	40 min follow up
9:40	
10:00	40 min follow up
10:20	
10:40	20 min Procedure
11:00	20 min Procedure
11:20	20 min Procedure
11:40	20 min Procedure

Summary of interventions:
- Implemented longer follow up visits (40 minute compared with prior 30 minute)
- Scheduled Botox visits in a group at the end of clinic with 2 different models (detailed above)
- Botox visits were scheduled for shorter lengths of time (15-20 minutes compared with prior 30 minute visits)
- Scheduled two nurses to be present during the procedure portion of clinic to assist with medication preparation and procedures
- Continued utilizing new organization of medication preparation room

Inclusion criteria:
- Botulinum toxin visits (Dysport or Botox)

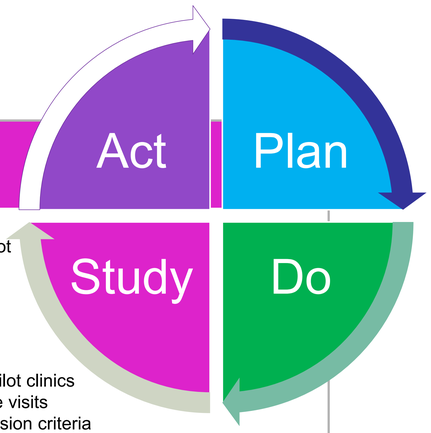
Exclusion criteria:
- Visits that involved medication administration for anxiolysis (For some patients, enteral midazolam is administered 20-30 minutes prior to procedure. In this case, visits are expected to be longer)
- Specialized procedures including phenol nerve blocks and ultrasound guided botulinum toxin injections that were intentionally scheduled for longer times

Results *(Study)*

Data was collected from July 2025-December 2025

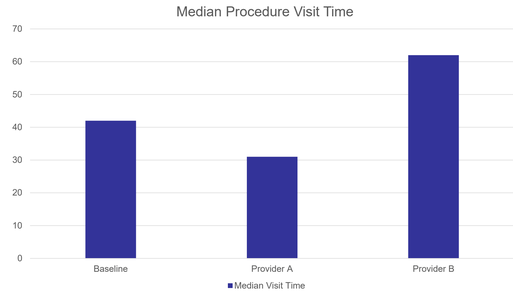
Note: Provider A was on maternity leave until mid-August, so data collection began after return. Additionally, Provider A's clinics ended 30 minutes early after return from leave reducing the number of available procedure slots to 2 per clinic.

Results *(Study)*



Provider A completed 8 pilot clinics with a total of 15 procedure visits
→ 10 encounters met inclusion criteria

Provider B completed 13 pilot clinics with a total of 34 procedure visits
→ 17 encounters met inclusion criteria



Median visit time for provider A improved to 31 minutes.

Median visit time for provider B did not improve and was higher than baseline at 62 minutes.

Though median visit time did not improve,
- Actual procedure times were short – in one clinic in which all 4 procedure visits occurred, Provider B completed 4 procedures in 66 minutes
- Provider B reported that she appreciated the flow of clinic separating follow up visits from procedures. She also reported that she was able to complete more of her documentation during her clinic time with this set up.
- Procedure appointments sometimes started late due to first part of clinic running behind
- Some procedure times may have been inflated due to delayed check out times that were manually recorded by nursing.

Future Directions *(Act)*

Next steps:

- Continue with piloted clinic model for Provider A
- Increase number of clinics with this setup for Provider A
- Explore additional clinic scheduling models for Provider B
- Determine factors leading to delays with non-procedure portion of clinic for Provider B
- Expand pilot clinics to other providers

From Order to Action: A Quality Improvement Initiative to Reduce Wait Times for PM&R in Outpatient Settings

Alexis Coslick DO[1] Mohammed Emam MD[1] Erik Hoyer MD[1] Bingqing Ye[1] Kelly Daley[1] Mohamed Soliman[1] Amna Haider MD[1] DJ Kennedy MD[2]

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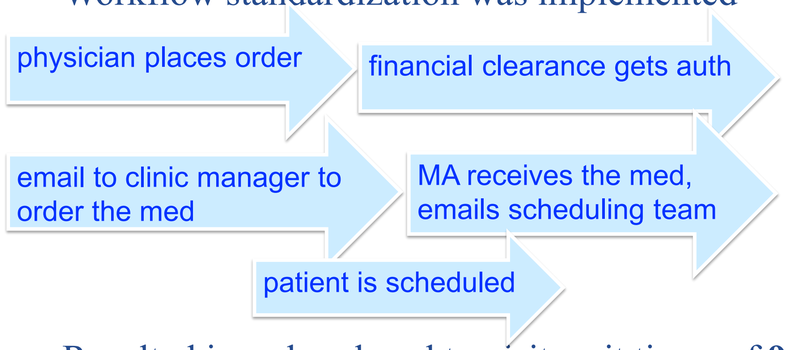
[2]Physical Medicine and Rehabilitation Vanderbilt University School of Medicine Nashville, Tennessee

Background

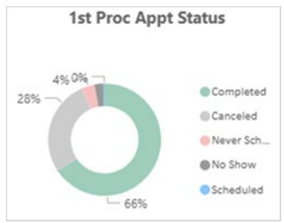
- Procedures remain a common treatment option
- Previously patients arrived in clinic for procedures lacking medications available and pre-authorizations
- Workflow standardization was implemented



- Resulted in order placed to visit wait times of **90 days** with **66 % completion rate** in 2024

Avg Day Lag

90



"The breakdown in communication … plays a big part."

"Providers being scheduled months out … There are instances where … the patient then cancels their appointments."

"Patient not updated during process calls clinic multiple times for updates, time consuming."

Aim

To expedite the time from deciding to perform a procedure to the patient undergoing the procedure.

Objectives

- Reduce wait times by 33% (to 60 days)
- Increase completion rate from 68% to 75%

Interventions

- Baseline data retrieval with help from informatics team
- Interview those involved in the steps to obtain information about barriers and inefficiencies

- **Streamline existing process**
  - **Add on slots for injections**
  - **Teams file to aid communication**

Patient Name	Order Date	Provider	Open Days	Financially Cleared?	Injection Appt Location	Med Ordered	Med Arrived	Med Arrival Date	Med Details	Status	First Appt
TEST Patient 1	10/23/2025	Dr. Cordova	29	Yes	GSS	Yes	Yes	11/17/2025		In Progress	
TEST Patient 2	10/24/2025	Dr. Manor	28	Yes	GSS	Yes		11/17/2025	ABC	In Progress	
TEST Patient 3	11/4/2025	Dr. Coslick	17	Yes	MEYER	No					
TEST Patient 4	10/28/2025	Dr. Emam	24	Yes		No					
TEST Patient 5	11/5/2025	Dr. Manor	16	Yes	ODEN	Yes					
TEST Patient 6	10/27/2025	Dr. Coslick	25	Yes	GSS	Yes	Yes	11/14/2025			

Outcome

- Wait times reduced to **47 days** from September to November 2025
- Completion rate improved to **78%**

Avg Day Lag

47

Impact

- Expedited patient care
- Reduction in lost revenue
- Improved teamwork, communication, and collaboration

Future Direction

- Direct physician-MOC system
- Continue add on slots
- Make applicable to other divisions in PM&R
- Continue to use actionable oversight to drive improvements

Cost stratification of lumbar surgery patients undergoing rehabilitation based on disability outcome measures

Dr. Roger De la Cerna

Hospital Nacional Edgardo Rebagliati Martins, Peru

- External mentor: Dr. Eric Wisotzky
- Internal mentor: Dr. Nives Santayana

INTRODUCTION

Lumbar spine surgery (LSS) has increased substantially in recent years, yet many patients continue to experience persistent pain, disability, and poor return-to-work outcomes. Disability in these patients is commonly assessed using the Roland Morris Disability Questionnaire (RMDQ) and Oswestry Disability Index (ODI), although each tool is better suited to different severity levels. LSS patients often become "high-cost" due to ongoing disability and high healthcare utilization, yet rehabilitation costs remain understudied—especially in Latin America—prompting this study's cost stratification analysis at a Peruvian referral hospital.

METHODS

Cross-sectional descriptive study using medical records and in-person functional-disability assessments (RMDQ and ODI) of all the patients enrolled in the Occupational Spine Rehabilitation Program (OSRP) at Rebagliati Hospital (HNERM) in September 2025. Participants were adults with a history of LSS undergoing rehabilitation. Data extracted included sociodemographic, clinical, functional-disability, work-disability, and rehabilitation service–utilization variables. Patients were stratified into high-cost and non–high-cost groups based on functional-disability scores, and rehabilitation-related expenses were estimated using EsSalud's fee schedule and temporary disability–benefit calculations.

RESULTS

A total of 63 LSS patients were evaluated; the median age was 58 years and 54% were female. Herniated nucleus pulposus, spinal stenosis, and foraminal stenosis were the most frequent diagnoses, with a median pain score (VAS) of 6/10 and over half reporting pain radiation to the lower limbs. Patients received a median of 46 PT sessions, 10 OT sessions, and 7 psychological sessions, with a median program length of 689 days and 254 days of accumulated work-disability leave. Significant functional disability was identified in 65.1% of patients using the RMDQ and 92.1% using the ODI.

Table 1. Characteristics related to significant disability according to RMDQ score (n=63).

	Significant disability according to RMDQ score		P*
	No (n=22) n (%)	Yes (n=41) n (%)	
Age (years)*	60 [54-65]	57 [51-63]	0.634**
Sex			0.550
Male	9 (40.9)	20 (48.8)	
Female	13 (59.1)	21 (51.2)	
Level of work intensity	3 [2-4]	2 [1-3]	0.351
Herniated nucleus pulposus			0.833
No	7 (31.8)	12 (29.3)	
Yes	15 (68.2)	29 (70.7)	
Spinal stenosis			0.643
No	11 (50.0)	18 (43.9)	
Yes	11 (50.0)	23 (56.1)	
Foraminal stenosis			0.446
No	14 (63.6)	22 (53.7)	
Yes	8 (36.4)	19 (46.3)	
Vertebral fracture			**0.018†**
No	16 (72.7)	39 (95.1)	
Yes	6 (27.3)	2 (4.9)	
Pain severity (VAS)	5 [4-6]	6 [4-7]	0.111
Pain radiation to lower limbs			**0.017**
No	15 (68.2)	15 (36.6)	
Yes	7 (31.8)	26 (63.4)	
Muscle weakness in lower limbs			0.096
No	17 (77.3)	23 (56.1)	
Yes	5 (22.7)	18 (43.9)	
Number of PT sessions	42 [36-69]	52 [25-93]	0.299
Number of OT sessions	9 [4-13]	10 [5-14]	0.756
Psychological therapy sessions	7 [1-11]	7 [1-15]	0.439
Rehabilitation care time (days)	697.5 [309-987]	689 [450-1283]	0.604
Accumulated work disability time (days)	231.5 [153-393.5]	259 [58-399]	0.574

Table 2. Comparison of rehabilitation and disability-related expenses between potential low-cost and high-cost patient types (according to RMDQ score) (n=63).

	Potential patient type according to the RMDQ score	
	Low-cost (n=22)	High-cost (n=41)
Total expense for PT (USD)	294 [252-483]	364 [175-651]
Total expense for OT (USD)	45 [20-65]	50 [25-70]
Total expense for psychological therapy (USD)	70 [10-110]	70 [10-150]
Total expense for temporary disability benefits (based on daily minimum wage) (USD)	2546.5 [1683-4328.5]	2849 [638-4389]

The RMDQ was used for cost stratification because it displayed greater score variability than the ODI, which classified nearly all patients into a single disability category. Median total expenses associated with rehabilitation service–utilization were similar between RMDQ-based non–high-cost and high-cost patient types; however, total PT expenses showed a noticeable difference (294 USD vs. 364 USD), consistent with a higher number of sessions in the high-cost group. Costs for OT and psychological therapy were comparable between groups. Total expenses for temporary disability benefits exhibited similar medians, with wider variability in the high-cost group.

CONCLUSIONS

The RMDQ showed stronger discriminatory capacity than the ODI, suggesting it could be used at program entry to identify high-cost LSS patients. Early stratification may allow clinicians to prioritize these patients and reduce prolonged work-disability–related expenses. Although most clinical and service-utilization variables were similar across groups, higher disability was linked to greater socioeconomic burden, reinforcing the value of targeted rehabilitation strategies.

Atrium Health

Wake Forest University School of Medicine

Atrium Health Carolinas Rehabilitation
Department of Physical Medicine & Rehabilitation

Faculty Development Workshops

Sima A. Desai, MD[1], Internal Mentor: Kelly Crawford, MD [1], External Mentor: Benjamin Seidel, DO[2]
[1] Atrium Health Carolinas Rehabilitation, Charlotte, NC [2] UT Health San Antonio, San Antonio, Texas

Introduction

BACKGROUND

- Annual surveys showed that faculty wanted more exposure to faculty development opportunities for general career enhancement and progression.
- Currently, we have only 1 faculty development workshop per year in the topic of bias training
- **Goal was to develop 2 faculty development workshops of topics that were of most interest to faculty**

OBJECTIVE

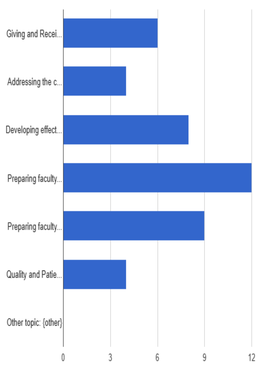
- Develop 2 Faculty Development Workshops to occur during the lunch hour based on survey feedback for the best timing
- 1 hour workshops from 12:00-1:00 PM

METHODS

- Created a pre- and post-program survey distributed to the faculty to gauge current satisfaction, interest, topics of interest, barriers, and any additional feedback regarding future faculty development suggestions
- Pre and Post Surveys for each faculty development workshop were completed to assess usefulness and effectiveness of the topics
- 2 one hour workshops occurred over one quarter period

Pre-Survey

Topics of Interest?



Topic Options were as follows

- Giving and Receiving Feedback
- Addressing the challenges of faculty burnout and promoting well-being
- Developing effective mentoring relationships with residents and other faculty
- Preparing faculty for leadership roles
- Preparing faculty for research opportunities
- Quality and Patient Safety

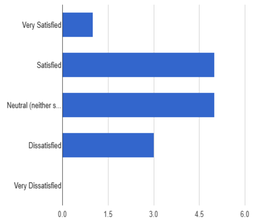
Pre-Survey – The two most popular topics were preparing faculty for leadership roles and preparing faculty for research opportunities

Post Survey –- addressing the challenges of faculty burnout, preparation of faculty for leadership roles, and research opportunities were the 3 most popular topics requested

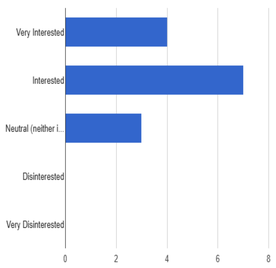
Survey Results

Pre-Survey

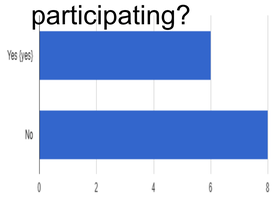
How satisfied are you with current faculty development?



How interested are you in participating in workshops?

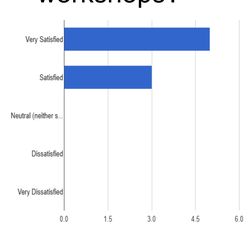


Do you anticipate any barriers to participating?

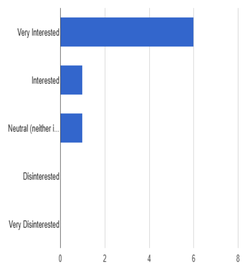


Post Survey

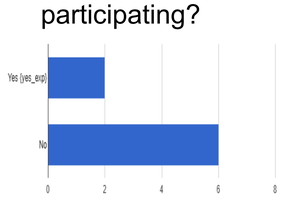
How satisfied were you with 2 workshops?



Interest in participating in future workshops?

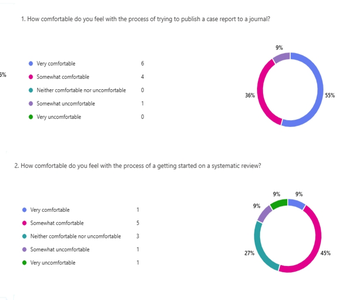


Do you anticipate any barriers to participating?

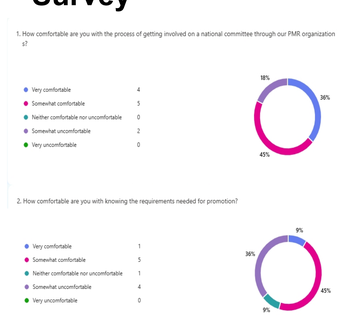


Workshop on Research Pre-survey

Workshop on Research Post Survey



Workshop on Leadership Pre Survey



Workshop on Leadership Post Survey

Pre-Survey Feedback

Barriers to Participation	Other suggestions for enhancing career
Care Team	Procedural workshops
Time	Individualized career plan
Clinical Duties	Brief emails with faculty development topic & updates on projects to be involved in
	Research funding assistance

Post-Survey Feedback

Barriers to Participation	Other suggestions for enhancing career
Care team	Small group breakout sessions
Time	Research funding assistance
Clinical Duties	Early Career Mentor Program

Discussion

- Pre and Post Surveys found the workshops were generally well received and helpful
- Pre and Post Survey results from the Research Opportunities showed improved comfort seen in how to approach case report publications, systematic reviews, and accessing CTSI resources
- Pre and Post Survey results from the Leadership topic showed improved comfort with involvement on national committees and the internal promotional process
- Other topics of suggestion were for research funding, early career mentorship program, and procedural workshops
- Total of 11 faculty participated in both workshops which were all inpatient faculty this year

Conclusion

- 2 Faculty Development workshops were successfully attended on the topics of research opportunities and leadership development by 11 faculty
- We hope to attract more faculty in the future as the primary attendance was by inpatient physicians
- We hope to add faculty from our outpatient and outlying inpatient rehabilitation sites in the future as well
- Time will remain a barrier as this program occurs during the lunch hour of the work-day
- This program provides a feasible option to continue quarterly faculty development workshops for all faculty and implement a year-long program to enhance career development

References

1. Accreditation Council for Graduate Medical Education in Physical Medicine and Rehabilitation. (2025). *Common Program Requirements*.

Contact Info

- Sima.Desai@advocatehealth.org

Acknowledgements

- We would like to thank the Department of Physical Medicine and Rehabilitation at Atrium Health for supporting this project. I would also like to thank both my internal and external mentor for their guidance throughout this process.

Develop a Physical Medicine and Rehabilitation/Physiatry Residency Program in Nepal within 3 years.

Dr. Raju Dhakal, Medical Director, Spinal Injury Rehabilitation Center and Program Director – Physical Medicine and Rehabilitation Fellowship, Patan Academy of Health Sciences, Nepal
External Mentor – Prof. James Sliwa
Internal mentor - Prof. Balakrishnan M Acharya

1. PLAN

1a. Problem statement – People in Nepal face significant challenges to get appropriate rehabilitation services.

1b. Supporting data – The WHO estimated in 2021 that 16% of the total world population and 2.2 % of Nepal's 30 million people are living with disability. There are only 2 actively practicing physiatrists in the country and no training programs. The Nepal Ministry of Health and Population (MoHP) has identified the huge unmet need of rehabilitation services including Physiatrists.

1c. Statement of Aim – To develop a Physical Medicine and Rehabilitation/Physiatry residency program in Nepal within 3 years.

✓ **1d. Root cause –** Why do people in Nepal not receive adequate rehabilitation services?

✓ There is poor recognition of the benefits of rehabilitation by hospitals and medical schools.

✓ Doctors who seek training in Physiatry have had to leave Nepal to get it.

1e. Why there is no PM&R residency program in Nepal?

✓ Lack of advocacy and understanding for Physiatry in Nepal by academic and clinical institutions.

✓ Inadequate support from Medical Education Commission (MEC), Ministry of Education, Science and Technology (MEST).

✓ Inadequate faculty as required by MEC/Nepal Medical Council (NMC) to run a residency.

✓ Lack of financial resources to support Physiatry residency training

NEPAL

PATAN ACADEMY OF HEALTH SCIENCES

SPINAL INJURY REHABILITATION CENTER

SIRC-PAHS Team

2. ACTIONS (DO)

Pathway to start a Physiatry Residency in Nepal

2.1a. Academic, and Clinical Institutions

✓ Met the Vice Chancellor, Academic Dean/Registrar/Rector and other faculty/academic administration of Patan Academy of Health Sciences (PAHS)

✓ Series of presentations from 2023 to explain the scope and need of Physiatry, on national and international levels.

✓ After careful consideration of faculty and capacity of academic institutions, agreed to develop a 2-Year post-residency Fellowship Program.

✓ MoU between Spinal Injury Rehabilitation Centre (SIRC) and Patan Academy of Health Sciences was signed in 2023 to run a Fellowship Program.

✓ One Physiatrist appointed as a Faculty and Program Director from SIRC at PAHS

✓ Competency-based Fellowship curriculum was developed and was approved by the Academic Council of PAHS.

✓ Two Fellows in Physiatry enrolled in a 2-year Fellowship Program and will complete training in 2026

✓ Planning continuation of Fellowship Program and development of a full Physiatry Residency Program to meet the national needs and standards.

2.1b. National Regulatory Agencies

✓ Met with Medical Education Commission (MEC) and Nepal Medical Council (NMC) to inform about Physiatry and unmet needs in Nepal

✓ MEC and NMC approval obtained. Funding discussed.

✓ Funding sources had to be secured by PAHS and SIRC .Public funding potentially available.

✓ Due to lack of Nepali physiatric faculty, PAHS faculty supported the teaching program in person, and international physiatry faculty virtually.

✓ On completion of training, the fellows can become faculty on meeting PAHS criteria (research publications and of work experience).

2.1c. Development Partners, International and National level

✓ The Fellowship Program started with a grant from International Development, Aid and Collaboration of the Royal College of Physicians and Surgeons of Canada

✓ Further support was from Spinal Cord Injury Collaboration (SpiNepal), UBC, Vancouver, Canada; Global Academy of Physiatry

✓ Continuous international mentoring, academic and financial support sought until our program achieves sustainability.

3. FUTURE (CHECK AND ACT)

✓ In the fiscal year 2028/29, a formal Residency Program will be started in Nepal with recruitment of current Fellows as faculty.

✓ A 3-year Physiatry Residency Program continues at PAHS, fully funded within Nepal.

✓ Physiatry Department/Units open in other academic institutions or universities.

✓ Root cause analyses to be done as part of Quality Improvement (QI) cycle for the Residency Program, if problems arise.

Rehabilitating the Review:
Evaluation and Intervention Aimed at Improving Numbers and Timeliness of Faculty Evaluations for Residents in a PM&R Residency Program

Kaile Eison,DO

Background

End of rotation faculty evaluations of residents are essential for providing feedback, tracking progress, and ensuring competency development. Low completion rates can impact resident learning, hinder accurate performance assessments, delay institutional reporting. In 2023-2024: 322 requests for faculty evaluations of residents across 7 clinical training sites; 43.5% completion; 30% on-time.

Sampling

79 total core teaching faculty were identified with potential to evaluate residents). Exclusion criteria: 23 non-NYP faculty, 3 on parental leave, 1 quit, 10 offsite at NYP campuses, 4 neurologists, 9 do not work with residents, 1 program directors ⇒ 28 possible faculty members to evaluate. Surveyed bottom 25% of responders in the 2023-24 academic year (8 faculty members), which correlated to all faculty members </= 55% completion rate.

Aim

Increase number and timeliness of faculty completing end-of-rotation resident evaluations.

Interview Questions

• What are the barriers you perceive to the current process?	• Adequate alerts?
• Do you feel there are barriers with the process of completion?	• Do you know what the content is used for? If not, would it be helpful to know? If so, are you more likely to complete the evals knowing the import?
• Do you feel you have adequate training in how to complete the evals?	• Would an incentive make a difference?
• Do you have adequate time for completion?	• 2 easy changes

Plan

Data and suggestions were obtained from the 8 lowest-completion attendings via individualized calls; provide support/training; monitor real-time rates.
Suggestions have been made to departmental and residency program leadership to implement several of the suggestions, including, but not limited to embedding feedback surveys into an email (bypassing the evaluation site), dedicated time during steering committee and faculty meetings for completion of evaluations, and including more patient case based content.
Effectiveness will be evaluated in the 2025-2016 academic year.

Optimizing Revenue from G2211 Modifier

Stephen Hampton, MD[1], Lori Pray, MBA, FACHE[1], Gary S. Clark, MD[2]
1 Department of Physical Medicine and Rehabilitation, University of Pennsylvania, Philadelphia, Pennsylvania
2 Department of Physical Medicine and Rehabilitation, Case Western Reserve University/Metro Health Medical Center, Cleveland, Ohio

Plan

Starting January 1, 2024, the Centers of Medicare & Medicaid Services (CMS) reduced the conversion factor for reimbursement of RVUs. Simultaneously, a G2211 modifier was introduced to be used when a provider has a long-term relationship with a patient and is either 1) providing all care needs like a PCP or 2) providing longitudinal care of a serious or complex medical condition. This modifier is particularly relevant to PM&R practices given the emphasis on managing chronic, disabling conditions. In our department, use of the G2211 modifier has been limited resulting in missed revenue. We suspect there are two primary reasons for limited use of the G2211 modifier: 1) awareness of when it is appropriate to use and 2) forgetting to add during a busy clinic day.

Do

We aimed to increase the use of the G2211 modifier to at least 20% of return visits with the same provider. Education regarding the G2211 modifier was provided at Bi-Monthly Faculty Meetings and our annual Faculty Retreat. An optional alert suggesting consideration of the G2211 modifier was added to visits when 1) it is a return visit and 2) no procedure codes have been billed. Adding this required discussion during our monthly Rehab EMR Governance committee, which I chair as the Chief Medical Information Officer (CMIO) of PM&R.

Study

We monitored the use of the G2211 modifier from January 2024 through December 2025.

Act

Educational presentations had an impact on G2211 usage, however the optional reminder at chart closure had a much greater impact. The months following this reminder have seen an **average increase in G2211 modifier use of 54% and revenue of $6,875.90 per month**. If this trend holds, it would result in **approximately $80,000 in additional department revenue per year** Individual provider analysis demonstrated the marked uptick in G2211 usage for the majority. Targeted outreach to the provider who continue to underutilize this modifier is warranted.

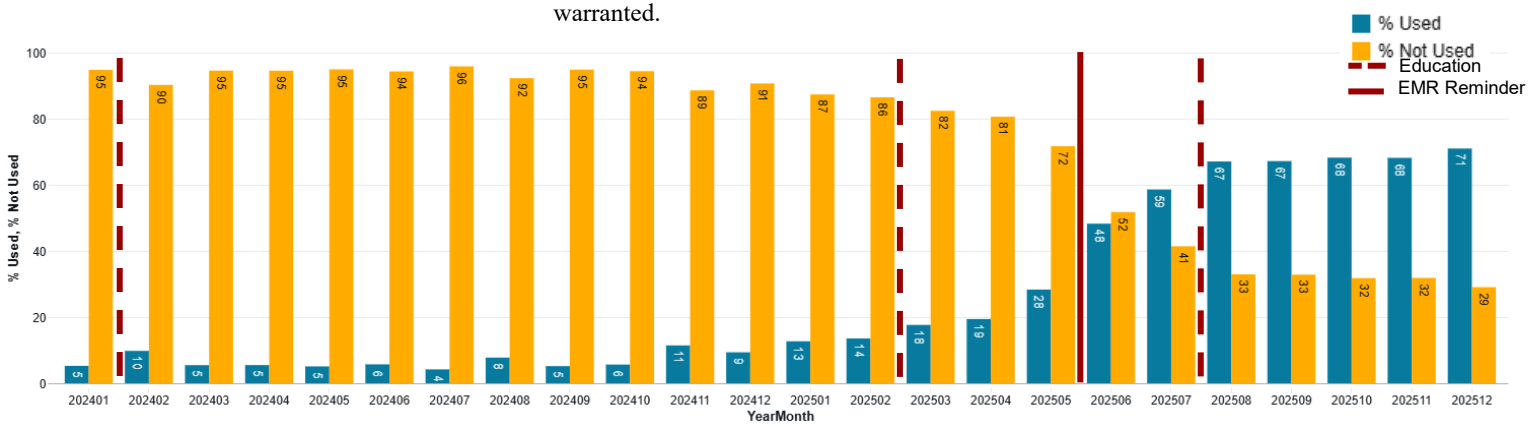


Figure 1. Percent Usage of G2211 Modifier for Return Patient Visits. In January 2024, an email communication was sent to all faculty encouraging use of G2211 modifier without measurable impact. G2211 was discussed during a faculty meeting in March 2025 and conversations following AAP 2025 while this project was in development. An EMR reminder was deployed in mid-June 2025 and discussed in the following faculty meeting.

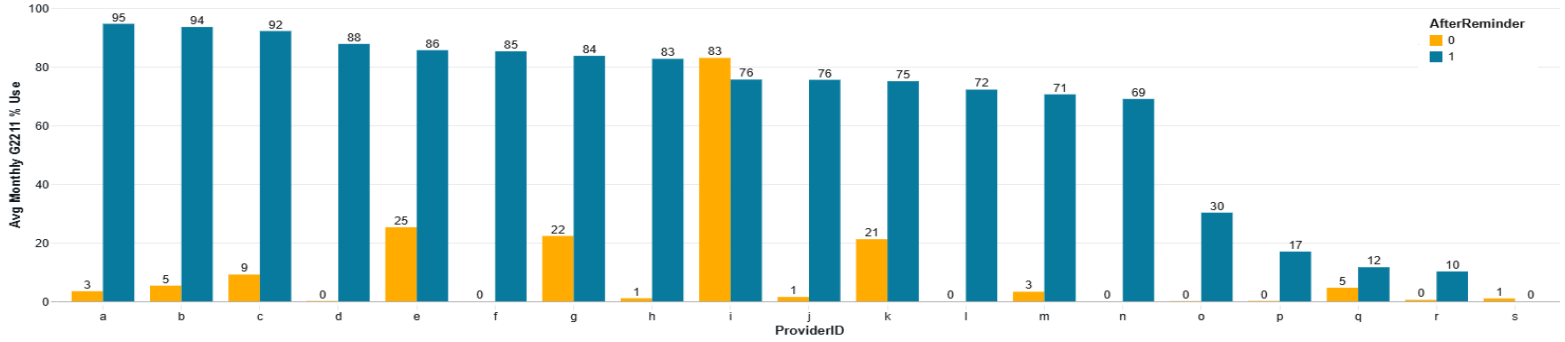


Figure 2. Percent Usage of G2211 Modifier for Return Patient Visits Per Provider. Providers were excluded from individual analysis if they had <5 visits per month on average during the study period**.** 15 of 19 providers increased to the 20% target with the majority vastly exceeding this. 13 providers increased their usage by >50%. There was one notable individual with high pre-reminder usage, who had a relative decrease following the reminder and 5 individuals with continued relative low usage of G2211.

Building a Sustainable PM&R Residency Infrastructure Through Stakeholder Alignment, Workflow Redesign, and Early Implementation

Author: Jennifer Hankenson, MD **Internal Mentor: Chad Washington, MD** **External Mentor: Christopher Garrison, MD, MBA**
Institution: University of Mississippi Medical Center

📘 INTRO / OBJECTIVES

UMMC previously attempted to establish a PM&R residency in 2018 but was unable to proceed due to limited stakeholder alignment, insufficient rotation structure, and lack of administrative infrastructure.

In 2025, a renewed initiative using Quality Improvement (QI) methodology was launched to evaluate and rebuild the educational, administrative, and clinical framework necessary to support residency accreditation.

Objective:

To build a sustainable PM&R residency infrastructure by December 2025 by strengthening stakeholder engagement, establishing clinical rotations across 10+ training domains, developing administrative pathways (funding + program coordinator), drafting the ADS application, and initiating early implementation workflows.

🧪 METHODS

A PDSA Cycle 1 framework guided development:

PLAN

- Identify cause of the 2018 failure, map institutional needs, design stakeholder strategy, outline curriculum domains, and create administrative workflow.

DO

- Conducted 16 structured stakeholder meetings across 7 departments (Neurology, Emergency Medicine, Pediatrics, Neurosurgery, NeuroSpine, MMRC, PM&R).
- Confirmed rotations in Neurology (consults, stroke, ICU), Emergency Medicine, Sports Medicine (pending), Pediatrics (Clark Center + outpatient), and NeuroSpine (procedures, MSK, EMG).
- Redesigned medical student rotation.
- Established Program Coordinator pathway and confirmed UMMC funding.
- Began drafting ADS application.

STUDY

- Stakeholders increased from 3 → 16 with ~95% support.
- Curriculum map expanded beyond target (10+ domains).
- Administrative barriers from 2018 addressed.
- Enhanced interdepartmental alignment.

ACT

- Finalize pediatric and sports medicine rotations.
- Build didactic schedule and evaluation system.
- Complete ADS application for January '26 GMEC review.
- Prepare Cycle 2 (implementation & evaluation tools).

BEFORE QI (2018 – Early 2025)	AFTER QI (Mid–Late 2025)
❌ **Stakeholders** • Only 3 active stakeholders	✅ Stakeholders • 16 engaged stakeholders across 7 departments • Strong cross-specialty alignment
❌ **Clinical Rotations** • No Emergency Medicine • No Sports Medicine • No Pediatrics • No NeuroSpine/EMG • No Neurology partnership	✅ Clinical Rotations Secured • Emergency Medicine (confirmed) • Neurology Stroke/ICU/Consults (confirmed) • NeuroSpine MSK/EMG/Procedures (confirmed) • Pediatrics: Clark Center + outpatient + inpatient consults (in progress) • Sports Medicine (connection established, rotation in progress)
❌ **Administrative Barriers** • Funding unclear • No program coordinator pathway • No ADS preparation • No GMEC-ready structure	✅ Administrative Infrastructure • Residency funding secured • Program Coordinator pathway formalized • ADS draft initiated • GMEC review scheduled for January 2026
❌ **Failed 2018 Attempt** • No sustainable momentum • No workflow or governance structure	✅ Leadership Structure • Sustainable system-wide momentum
❌ **Educational Gaps** • Curriculum not mapped • MSK/Ultrasound/EMG unstructured • Outdated student rotation • No pipeline development	✅ Educational Infrastructure • 10+ training domains mapped • Inclusion of MSK, Ultrasound, EMG, Spasticity, Procedures • Redesigned medical student rotation • PM&R interest group engagement strengthened

Figure 1. Before vs After QI System Transformation

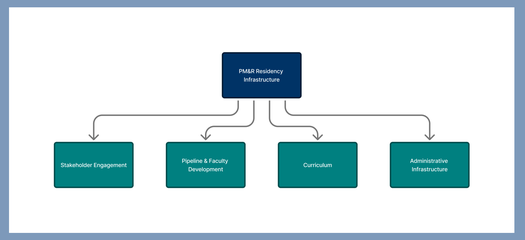


Figure 2. Residency Infrastructure Tree Diagram

Figure 3. Stakeholder Engagement Growth (2018 vs 2025)

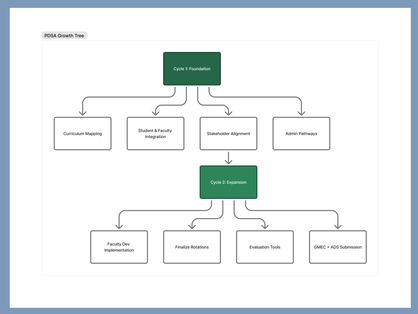


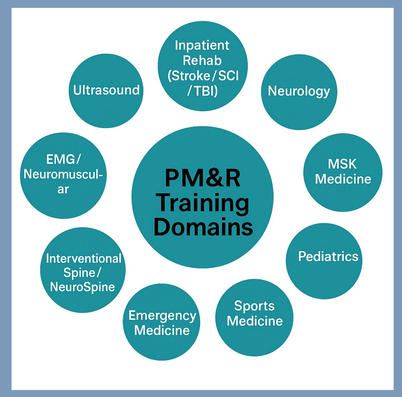
Figure 4. PDSA Cycle 1: Residency Infrastructure Development Vs Planned PSDA Cycle 2: Expansion

📊 RESULTS

- Stakeholder engagement improved 433% (3 → 16).
- 10+ core training domains established.
- Confirmed Emergency Medicine rotation.
- Initiated Sports Medicine collaboration.
- Defined pediatric rehab pathway.
- Confirmed UMMC residency funding and Program Coordinator process.
- Medical student rotation streamlined.
- ADS draft underway.

🧠 CONCLUSION

By applying a structured QI process, UMMC was able to overcome barriers that previously limited residency expansion and build a viable foundation for PM&R training. Early stakeholder alignment, thoughtful curriculum design, and clear administrative pathways were key drivers of progress. The resulting framework serves as a model that can be replicated by institutions facing similar challenges in developing new residency programs.



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Utilizing the Epic Narrator to Streamline the Injection Process in an Outpatient Musculoskeletal Clinic

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Internal Mentors: Amanda Molina, MHA[1] and Ankit Patel, MD[1]; External Mentor: Gerard Francisco, MD[2]

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[2]UT Health Houston (Houston, TX)

Background

The University of Texas Southwestern Medical Center (UTSW) outpatient musculoskeletal clinic injection procedure workflow involved multiple steps and lacked standardized documentation of the entire procedure workflow including one-step medication ordering which allow clinicians to document a medication administration in one step and in real time. As a result, providers and staff had to document across several tabs within the encounter. Clinical staff would pend medication orders in advance for provider review and during the injection visit they would need to record medication NDC, lot number, and expiration date in the Medication Administration Record (MAR).

During a high volume, fast-paced clinic day, these tasks were not always completed in real time and lead to breakdowns in the information being documented. Additionally, any missing information or mistakes resulted in emails from the revenue cycle department with instructions to retrospectively correct the documentation, adding additional time spent outside of direct patient care.

The Procedure Narrator tool in EPIC allows for customization and integration of toolboxes that include frequently used medications for injection procedures. Providers and clinical staff can easily access the Narrator to select and document medication administration in a single, streamlined step, ensuring real-time accuracy. By automatically logging medication details such as NDC, lot numbers, and expiration dates directly into the Medication Administration Record (MAR), the Narrator reduces the risk of errors and omissions. Minimizing the need for retrospective corrections typically prompted by the revenue cycle department, thereby decreasing documentation-related burdens on staff and providers.

Aim Statement

The goal of this Quality Improvement (QI) project is to enhance clinic efficiency and reduce documentation errors through customization of the Procedure Narrator tool for injection procedures by November 2025. By tailoring the tool to meet the specific requirements of injection procedures, we aim to streamline workflows, eliminate redundancies, and support real-time, accurate documentation, ultimately improving both staff satisfaction and patient care outcomes

Design

Collaborated with Clinical Informaticist and Epic analyst team to tailor and implement the Procedure Narrator tool in Epic to support the medication order/documentation process for injection procedures.

The Procedure Narrator provides the team with a single activity in Epic to document injection procedures. The narrator contains three key elements:

- One-step medications so clinicians can document the administration of the 14 most common medications in one step and in real time
- A narrative of all actions that take place during the procedure encounter including procedure start and end times within the Event Log
- Flowsheets for vitals and pain assessment

Desired outcomes included decreasing charting time and medication documentation errors and enhancing provider and staff satisfaction, visit volumes per session, and wRVUs.

- Measured provider and staff satisfaction level of injection procedure workflows through pre and post implementation satisfaction surveys.
- Measured clinic volumes, number of revenue cycle emails requesting corrections pre and post implementation of Procedure Narrator tool.

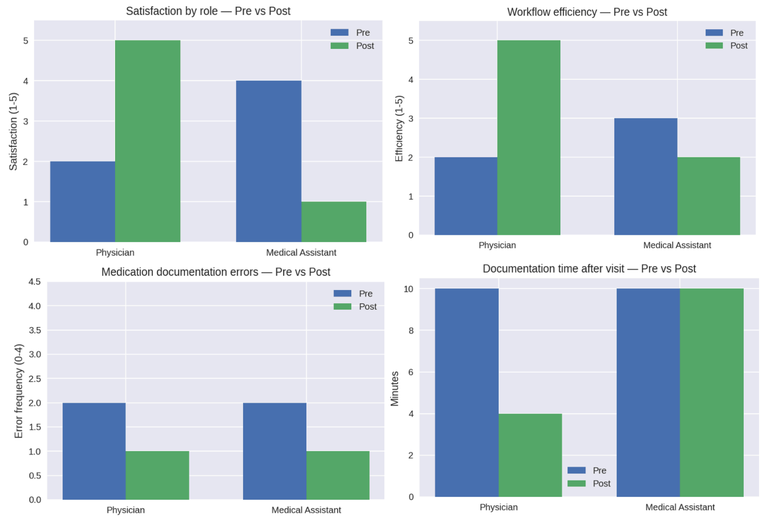
Results

Pre- and Post Implementation Satisfaction surveys for provider and medical assistant:

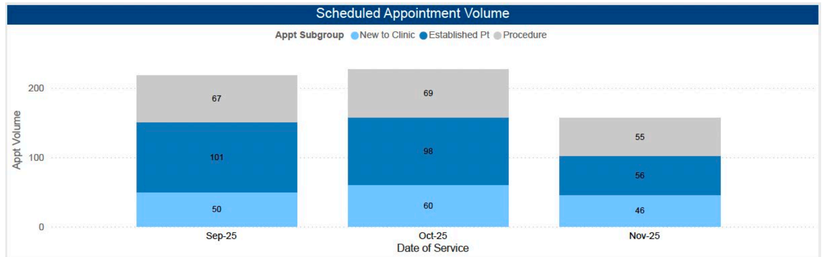
- Provider satisfaction of the process and perception on workflow efficiency increased, while these parameters decreased for the medical assistant.
- Medical documentation errors were perceived to be less by both the provider and medical assistant.
- Post-visit documentation time: provider improved from 5–10 min to <5 min; Medical Assistant remained at 5–10 min.
- Billing clean-up improved, email frequency moved from “Occasionally” to “Rarely” for both roles, and medical assistant’s weekly time correcting billing-identified errors improved from 30–60 min to <30 min.
- Provider burnout impact improved from “Significantly contributes” to “Slightly contributes”, and available patient care time shifted from “Significantly reduces” (pre) to “Slightly increases” (post).

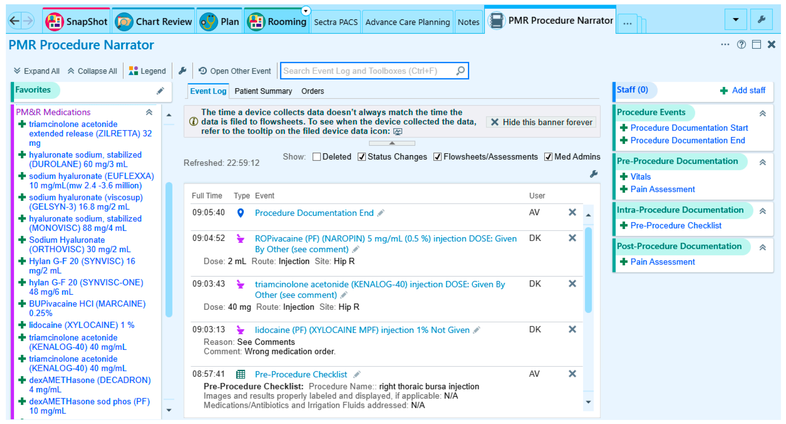
Number of Revenue Cycle Emails Received:

- Pre-Implementation (Average per Week): September- October 2025 1 to 2 discrepancy emails
- Post- Implementation (total): November 2025- 2 emails, December 2025- 3 emails



Appointment volumes pre- and post-implementation of the procedure narrator: In September 2025, there were 218 visits, and in October 2025, visits slightly increased to 227. Following the implementation, November 2025 recorded 157 visits. It's important to note that the provider was on vacation for a week in November, which meant that the average number of visits per clinic session remained consistent despite the overall decrease.





Discussion

- Provider experience improved substantially, but medical assistant experience worsened on workflow and clinic flow.
- The Procedure Narrator tool seemed to decrease the documentation burden for the provider and did the opposite for the medical assistant. This likely represents a transfer of the medication documentation burden from the provider to the medical assistant. Additionally, the process required the medical assistant to remain in the patient room the entire procedure visit which decreased available time to manage patient throughput and maintain clinic flow.
- Documentation time after the visit did seem to decrease with the Procedure Narrator, but clinic volumes remained relatively unchanged. This is likely due to the small sample size of only one provider and the decrease in available clinic time due to the provider being out of the office over the Thanksgiving holiday.
- Medication record discrepancies remained about the same post-implementation of the Procedure Narrator which can be looked at as a positive given the troubleshooting usually expected with a new process.

Conclusions

- The Procedure Narrator is a single user-friendly activity that streamlines procedure documentation of medications administered, and injections performed at the University of Texas Southwestern Medical Center (UTSW) outpatient musculoskeletal clinic.
- Overall, the Epic Narrator appears to be a promising tool to optimize administrative tasks associated with injection procedures in our outpatient musculoskeletal clinic. There is some fine tuning to be done, however, and the post-survey results emphasize the importance of taking into account how new processes may affect the role of all stakeholders.

Future Directions

- Continue utilizing Procedure Narrator while no longer requiring the medical assistant to stay in the room once initial documentation has been completed. Procedure end time would be logged when the physician leaves the room.
- Addition of new toolboxes to the Procedure Narrator to incorporate imaging orders
- Analyze impact to billed collections and patient experience to analyze the metrics with and without the Epic Narrator.
- Expanding Procedure Narrator to additional providers and implementing for a longer period will increase the sample size and clarify any other positive and negative effects in clinic flow utilizing the Narrator.

Improving Return-to-Rehab Rates after an Emergent Transfer

Michael Kryger MD, MS

Penn State Health, Penn State Health Rehabilitation Hospital

Mentors: Prateek Grover MD, PhD and James McDeavitt MD

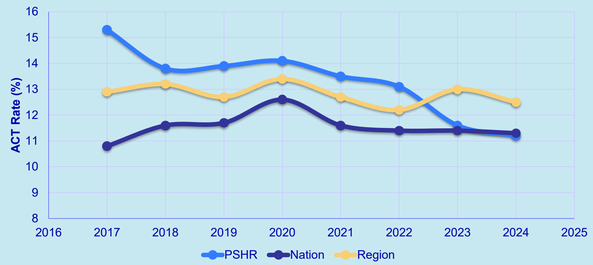
Problem

Our facility is a stand-alone inpatient rehabilitation hospital (IRF) that is a joint-venture partnership between a for-profit corporation that specializes in post-acute care, and a large academic health system, which includes a level 1 trauma center as our primary patient source. We have historically had a relatively high acute care transfer (ACT) rate compared to national and regional averages. While several interventions have taken place over the years to reduce ACT rates, we are still finding instances in which patients are sent out for a specific request to the Emergency Department (ED), and the patient is admitted without the opportunity to review the case to potentially return to rehab. In discussions with Emergency Department leadership, they note that their ED Physicians are too busy to figure out who to contact at the Rehab hospital. If patients avoid admission to the STACH (short-term acute care hospital) from the ED, then it does not count as an ACT.

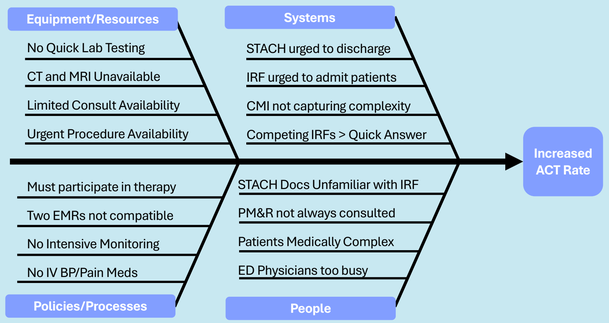
Background

Average ACT rate in the nation is about 10.6%, and for our region, about 12.6%. This number is influenced by the medical complexity of the patients, requiring weighted averages. The system for assigning medical complexity is inadequate to capture the modern patient who enters a rehab hospital, resulting in very medically complex patients who do not have an elevated Case Mix Index (CMI) based on diagnosis codes alone. Being in an academic standalone rehab hospital, we are thus very reliant upon our emergency department to rapidly work up patients. Despite these headwinds, we have made progress in reducing our ACT trends over time. However, it still lags behind the national average, and with a goal to become a top-tier rehab hospital, we would like to exceed those expectations.

ACT Trends- PSHR vs Nation/Region



QI Analysis- Fishbone Diagram



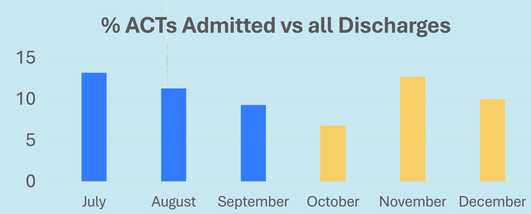
Goal

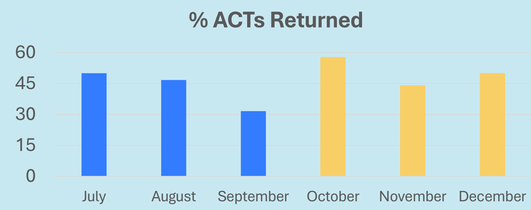
The goal of this project is to reduce our ACT Rate from 11.2% to 10%, which would improve our percentile ranking to approximately 65%. We hope to achieve this by improving the bridge of communication between the PM&R Providers and ED Providers, in order to better establish whether a patient can return to rehab once workup is complete. By giving the ED an easy point of contact, we expect that they will be more willing to collaborate on facilitating a patient return after send-out.

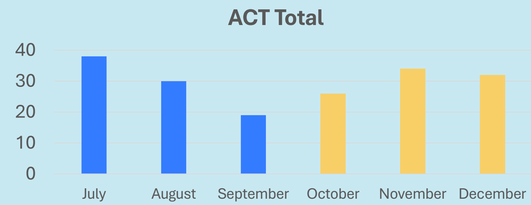
Intervention

The change to our procedures is to now *require* PM&R Providers to determine the ED provider caring for the patient, and reach out to them via a HIPAA compliant texting app. This intervention was chosen due to a large number of ACTs being admitted that potentially could have returned to IRF. It is also a more easily modifiable process. The intervention was initiated starting on October 1st, and data was collected on ACTs from July to December.

Results







Discussion

While October data seems promising, with a significant increase in returning ACTs, and reduction in ACT Rate, this drop is not sustained in November or December. Ultimately, more data will likely have to be collected to make stronger conclusions given the lack of trends in the three intervention months. It may also require a deeper dive into the reason for transfer and confirmation that the ED was contacted.

The project proves to be more challenging than anticipated, as it requires a significant change in provider practice, and also needs coordination with a different department to implement the intervention. It also highlights the many different factors that contribute to ACT Rate. Ultimately it looks like the best strategy to reduce ACT rate is to reduce the total number of patients needing to go to the Emergency Department. But we will continue to run through the PDSA cycle to examine the factors that contribute to ACT rate and create initiatives to improve this metric.

Conclusions

There was a significant increase in patients returning to Rehab after the intervention was implemented, but this was not sustained over time. More data would need to be collected to see if this intervention is helpful.

PennState Health Rehabilitation Hospital
In Partnership with Select Medical

Faculty Peer Mentoring to Address Burnout, Moral Injury, & Disconnect

Adam G. Lamm MD MA[1,2]
Internal Mentor: Benjamin Bruinsma MD[1,2]
External Mentor: William N. Niehaus MD[3]

[1]Mary Free Bed Rehabilitation Hospital, Grand Rapids, Michigan
[2]Division of Rehabilitation Medicine Michigan State University College of Human Medicine, Grand Rapids, Michigan
[3]Department of Physical Medicine & Rehabilitation, University of Colorado School of Medicine, Aurora, Colorado

Introduction

- Burnout is a syndrome of emotional exhaustion, lack of meaning in work, feelings of ineffectiveness, and depersonalization[1]
- Burnout metrics remain high among U.S. physiatrists[2] and high rates of depression in practicing physicians[3]
- Causes of burnout are multifactorial including excessive workload, work inefficiencies, lack of meaning in work, and work-life balance disruption, among others[4,5]
- High levels of burnout are associated with medical errors, reduced clinician responsiveness, empathy, and educational effectiveness[6]
- Many strategies have aimed to improve burnout, including allocating increased time to self-identified important work components,[7] leadership coaching,[8] and investment in career development[9]
- Current faculty wellbeing metrics at our institution were below intended targets on ACGME accreditation surveys (unpublished data)

Methods

- Voluntary participation for faculty & advanced practice providers
- Peer mentorship structure over a meal, ideally monthly
- Food cost paid by Medical Group
- Mentorship worksheet used for meal reimbursement
- Aims: learn new information about each other, discuss goals and solutions, what you hope to change, and set personal goals to meet by the next meeting
- Primary outcome: ACGME Faculty Wellbeing Questionnaire, Moral Injury Outcome Scale

Results

- 12 faculty and APPs volunteered to participate
- Relatively favorable pre-intervention faculty wellbeing metrics, and 2 individuals who reported moral injury (8 total responses; 66.7% response rate)
- Faculty wellbeing metrics remained favorable post-intervention, with 1 individual reporting moral injury (7 total responses 58.3% response rate)
- Range of meetings per pair ranged from 0 to 4 in the study period
  - Those reporting no mentor meetings reported lower levels of support in balancing responsibilities, implementing strategies, sense of community, progress toward personal goals
- Reported barriers to meeting included:
  - Scheduling challenges (finding a mutually acceptable time)
  - High clinical workload
- Faculty generally favored meetings during the workday when possible

Discussion

- Those who participated in mentor meetings reported more support toward meeting personal goals, implementing strategies for success, and building a sense of connectedness and community
- Burnout metrics remained relatively stable from pre- to post-intervention; those with higher burnout scores may have been less likely to participate
- This intervention may not have optimally addressed those who may benefit the most; further steps are needed to identify strategies to engage burnt-out and at-risk faculty
- Scheduling challenges and high clinical workload posed barriers to scheduling peer mentorship meetings

Acknowledgements

A special thank you to Emily DeFouw for helping procure funding for provider meals during mentorship sessions and to Sarah Thompson for processing reimbursement requests throughout the pilot intervention project

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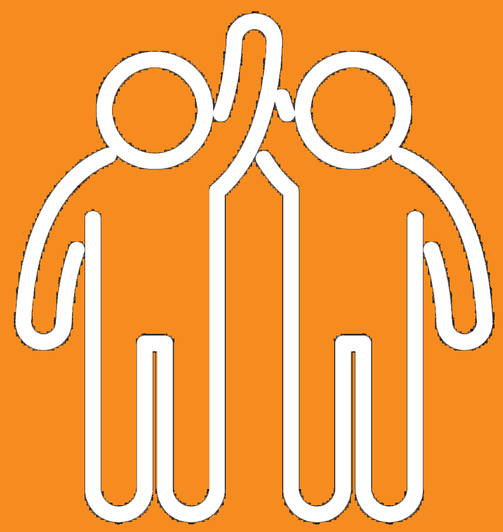
Mary Free Bed Rehabilitation Hospital

School of Medicine
UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS



Peer mentoring can be a tool to build **community** and may **combat burnout**, especially for junior faculty

Take a picture to **download** the **peer mentorship worksheet**

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
I find my work to be meaningful	0	0	2	6
I work in a supportive environment	0	1	3	4
The amount of work I am expected to complete in a day is reasonable	0	1	3	4
I participate in decisions that affect my work	0	3	4	1
I have enough time to think and reflect	0	2	5	1
I am treated with respect at work	0	0	2	6
I feel more and more engaged in my work	0	1	7	1
I find my work to be a positive challenge	0	0	5	3
I find new and interesting aspects in my work	0	0	4	4
I often feel emotionally drained at work	0	5	3	0
After work, I need more time than in the past to relax	1	5	2	0
I feel worn out and weary after work	0	5	3	0

Table 1: Pre-intervention ACGME Faculty Wellbeing survey results

	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
I blame myself	1	1	0	0	0
I have lost faith in humanity	1	0	0	1	0
People would hate me if they really knew	1	1	0	0	0
I have trouble seeing goodness in others	2	0	0	0	0
People don't deserve second chances	2	0	0	0	0
I am disgusted by what happened	0	0	0	2	0
I feel like I don't deserve a good life	2	0	0	0	0
I keep myself from having success	1	1	0	0	0
I no longer believe there is a higher power	2	0	0	0	0
I lost trust in others	1	1	0	0	0
I am angry all the time	2	0	0	0	0
I am not the good person I thought I was	1	1	0	0	0
I have lost pride in myself	1	1	0	0	0

Table 2: Pre-intervention Moral Injury Scale results

	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
I feel more supported in balancing my responsibilities	0	1	3	3	0
I have been able to utilize practical strategies to enhance my effectiveness as a faculty member	0	1	3	3	0
I have been able to strengthen my sense of connection & community	0	0	2	3	2
I have been able to make meaningful progress toward my personal/professional goals	0	0	4	3	0
I have improved self-confidence	0	0	4	3	0

Table 3: Post-intervention faculty responses to program effectiveness

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
I find my work to be meaningful	0	0	3	4
I work in a supportive environment	0	0	3	4
The amount of work I am expected to complete in a day is reasonable	0	1	4	2
I participate in decisions that affect my work	0	3	4	0
I have enough time to think and reflect	0	4	3	0
I am treated with respect at work	0	0	3	4
I feel more and more engaged in my work	0	0	5	2
I find my work to be a positive challenge	0	0	5	2
I find new and interesting aspects in my work	0	0	4	3
I often feel emotionally drained at work	0	6	0	1
After work, I need more time than in the past to relax	0	6	1	0
I feel worn out and weary after work	2	3	2	0

Table 4: Post-intervention ACGME Faculty Wellbeing survey results

	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
I blame myself	0	1	0	0	0
I have lost faith in humanity	0	0	1	1	0
People would hate me if they really knew	1	0	0	0	0
I have trouble seeing goodness in others	0	1	0	0	0
People don't deserve second chances	1	0	0	0	0
I am disgusted by what happened	0	0	0	1	0
I feel like I don't deserve a good life	1	0	0	0	0
I keep myself from having success	1	1	0	0	0
I no longer believe there is a higher power	1	0	0	0	0
I lost trust in others	1	1	0	0	0
I am angry all the time	0	1	0	0	0
I am not the good person I thought I was	1	0	0	0	0
I have lost pride in myself	1	0	0	0	0

Table 5: Post-intervention Moral Injury Scale results

Streamlining Curriculum Vitae Maintenance to Optimize Academic Promotion

Dan Pierce, MD[1,2]

1. Department of Physical Medicine and Rehabilitation, University of Nebraska Medical Center, Omaha, NE
2. VA Nebraska-Western Iowa Health Care System, Omaha, NE

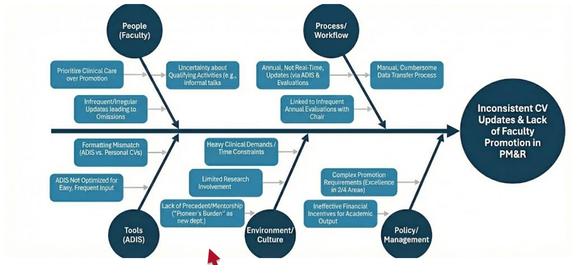
Background/Context

- Faculty development is a sustaining force within academic medical programs and is often a key metric to evaluate a department
- UNMC is in the process of significant revision of Promotion guidelines to have advancement along clinical tracks in place of purely academic tracks
- UNMC Physical Medicine and Rehabilitation Department
  - 10 years since it's initial formation
  - 7 current (11 total) non-chair faculty members
  - Over 40 combined service-years within the department across all non-chair faculty members
  - 0 academic rank advancements
- Annual academic variable compensation tied to academic activities documented within ADIS
- Department's initial goals focused on meeting clinical and educational demands with a small department, a new residency training program, and multiple clinical commitments to fulfill

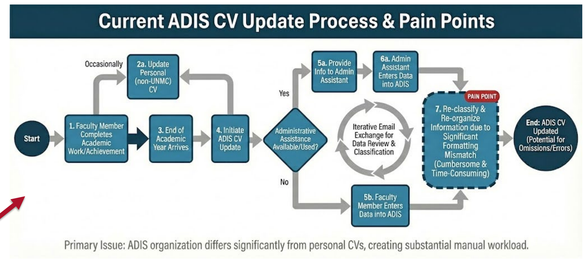
IHI Model For Improvement

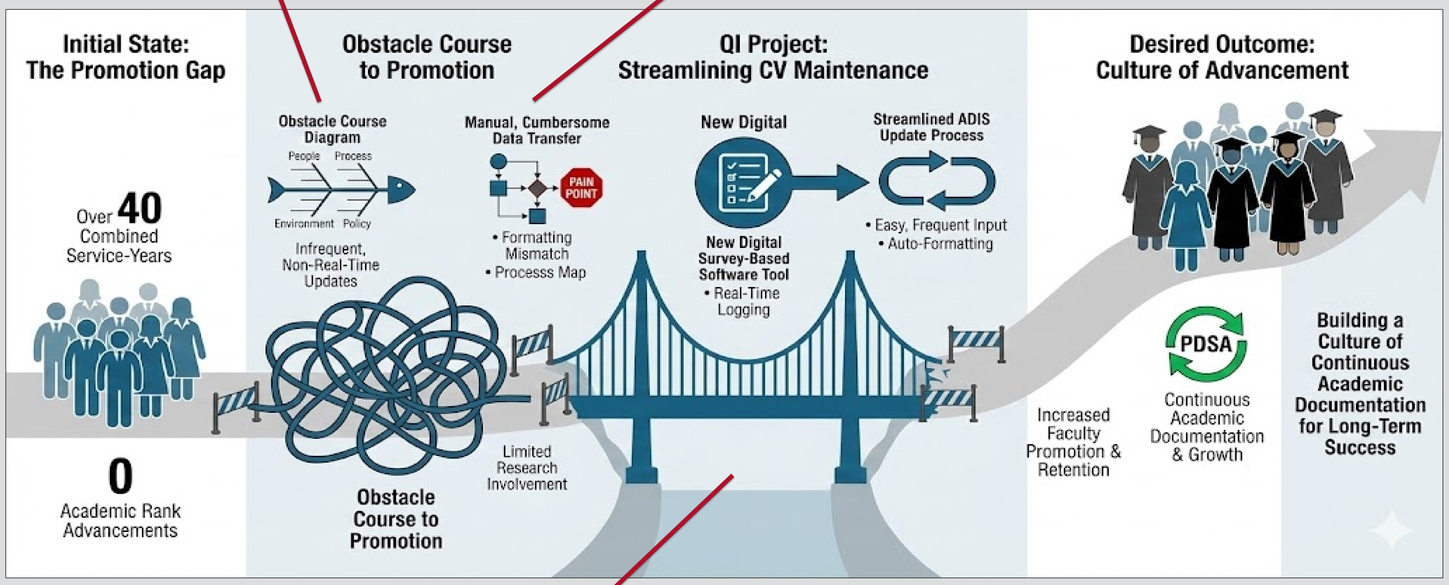
- 1. What are we trying to accomplish?
  - Increase the number of department faculty achieve rank advancement and promotion
- 2. How will we know that a change is an improvement?
  - Targeted outcome, process, and balance measures as described in further detail
- 3. What changes can we make that will result in that improvement?
  - Change ideas as described in further detail

Cause and Effect Mapping

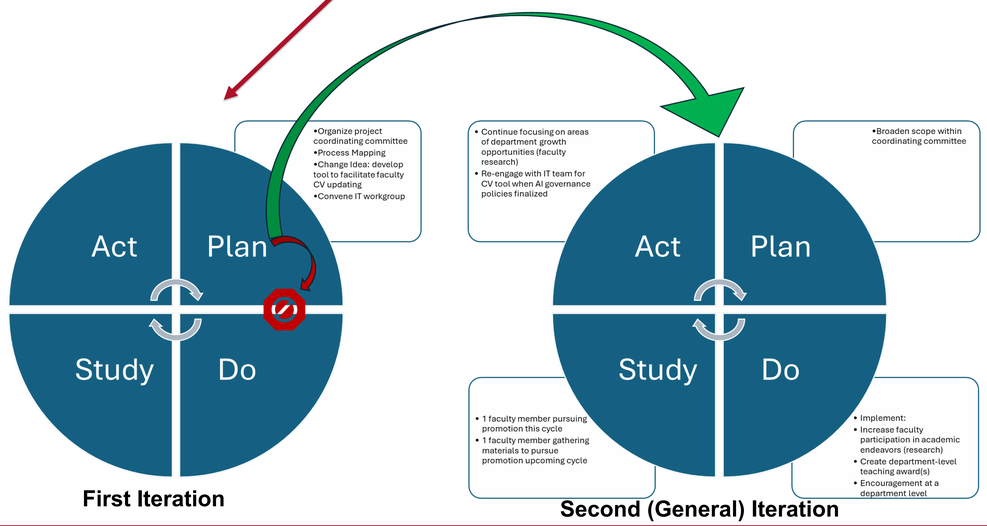


Process Mapping





Implementation



Ongoing & Future Directions

- Further support and encouragement for faculty to pursue achievements that would qualify for advancement and promotion
- UNMC AI guidance to be finalized in early 2026, at which time further development of AI-assisted tool can be pursued
- Ongoing UNMC ADIS/Watermark evaluation committee

Acknowledgements

- Thank you to
  - Dr. Sam Bierner (internal mentor)
  - Dr. Preeti Raghavan (external mentor)
  - Project coordinating committee
  - IT development team

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Optimizing Clinic Flow in a Multidisciplinary Spine Center

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Mentor: Christopher Chaput, MD

UT San Antonio, Department of Rehabilitation Medicine

Background

A multidisciplinary Spine Center was established approximately two years ago, bringing together physicians from PM&R, anesthesiology pain, orthopedic spine, neurosurgical spine, and pediatric spine, with support from advanced practice providers (APPs). Prior to this integration, support staff were hired and managed within individual departments and worked almost exclusively with a single specialty. With the creation of the Spine Center, multiple departments and their associated support staff were consolidated into a single physical clinical setting.

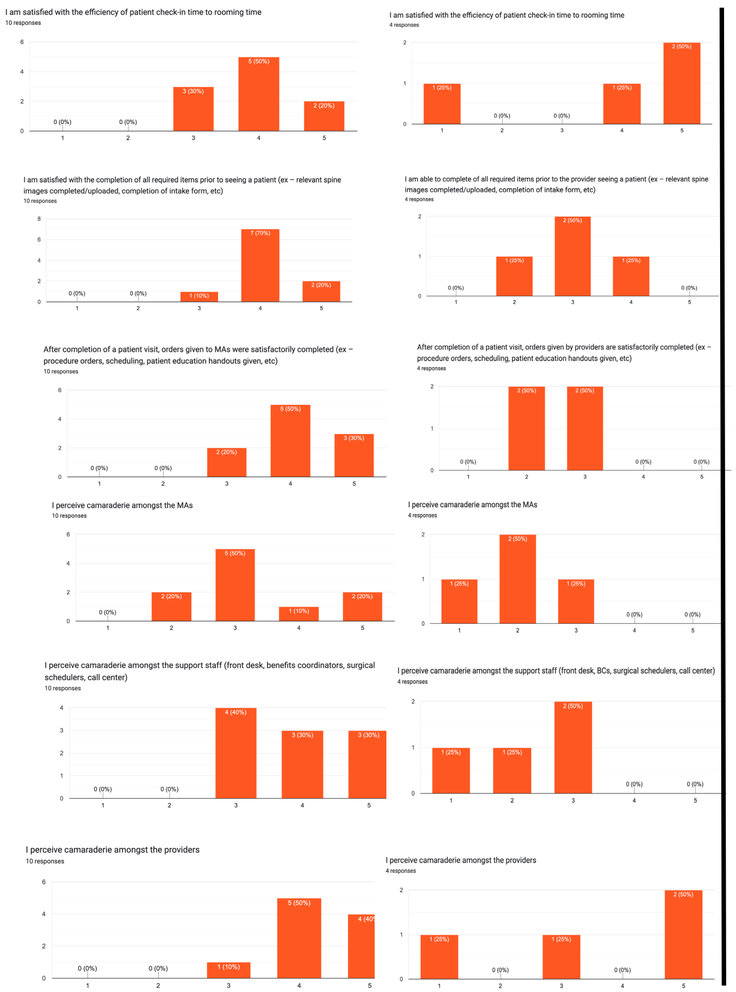
Overall, this multidisciplinary model has been highly successful, fostering collaboration and significantly improving patient access to care. However, support staff—particularly medical assistants (MAs)—are now required to work across multiple specialties and provider types. MAs support surgeons, non-surgeons, and APPs in both outpatient clinics and outpatient procedural settings, including ultrasound- and fluoroscopy-guided procedures. Anecdotal feedback from providers suggests that this cross-coverage model may be associated with increased errors, decreased clinic efficiency and patient throughput, and challenges with team camaraderie, highlighting an opportunity for targeted workflow standardization and quality improvement.

Plan

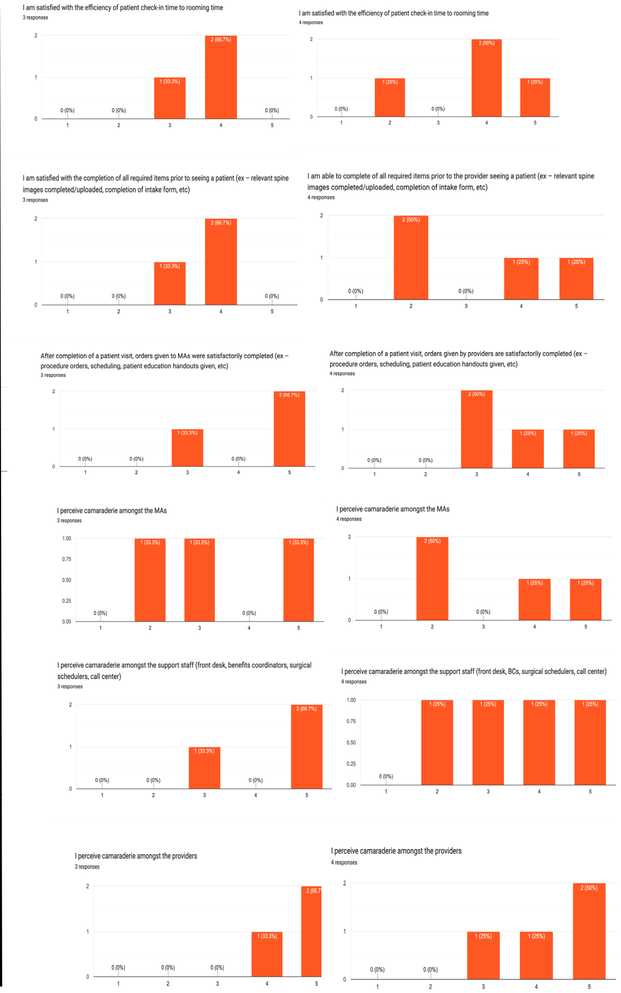
Create standardized clinic and procedures protocol in order to:

1. Decrease errors in patient take, procedure prep, booking f/u appointments and surgical scheduling
2. Improve clinic efficiency/patient turnover
3. Improve camaraderie amongst staff

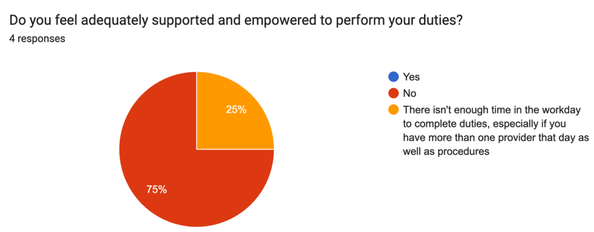
Pre-implementation Survey (Providers vs MAs)

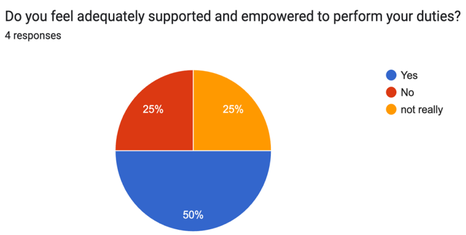


Post-implementation Survey (Providers vs MAs)



MA specific (pre and post implementation





Results

Pre-Implementation Findings
Prior to implementation, perceived differences were noted across nearly all surveyed domains, with the exception of patient check-in efficiency, which showed similar responses across groups (with one outlier among MAs). Overall, providers reported higher satisfaction with preclinical visit preparation, completion of post-visit tasks, and team camaraderie across all groups. In contrast, MAs consistently reported lower satisfaction in these same domains.

Post-Implementation Findings
Following implementation, improvements were observed primarily among MAs. Specifically, MAs reported increased satisfaction with preclinical visit preparation, completion of post-visit tasks, and camaraderie among MAs. Notably, none of the MAs reported feeling adequately supported prior to implementation, whereas half perceived increased support post-implementation. Due to variability and limited response distribution, conclusions regarding changes in perceived camaraderie among support staff and providers could not be reliably drawn.

Confounding Variables and Limitations
Several confounding factors may have influenced these findings. Most notably, the number of provider respondents decreased substantially from pre- to post-intervention (10 pre-intervention vs. 3 post-intervention), limiting the ability to draw meaningful comparisons and increasing susceptibility to response bias. Additionally, although the protocol was developed and initially assigned for implementation by the clinic manager and RN overseeing clinical operations, the RN resigned approximately two weeks prior to implementation, resulting in delays. Staffing turnover among MAs also occurred during the project period, with one MA transferred after completion of the pre-implementation survey and two newly hired MAs completing the post-implementation survey. These personnel changes likely affected both implementation fidelity and survey responses.

Discussion and Future Direction

This project identified baseline disparities in workflow experience and perceived support between providers and MAs, with MAs reporting lower satisfaction across key operational domains, underscoring the need for standardized workflows. Post-implementation, improvements were primarily observed among MAs in areas most directly affected by the intervention, including preclinical visit preparation, post-visit task completion, and perceived support, suggesting improved role clarity and workflow organization. Changes in provider or interdisciplinary perceptions could not be reliably assessed due to limited post-intervention response rates and variability. Implementation was influenced by common real-world challenges, including staffing turnover and leadership changes, highlighting the importance of adaptability in QI work. Future efforts should focus on strengthening implementation fidelity through stable operational ownership and structured onboarding, increasing provider engagement, and pairing staff experience measures with objective process metrics to support sustained improvement.

Increasing Residency Scholarly Activity: Improving Attendance Within a Professional Development Program

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Background

PROBLEM: Poor resident attendance within residency professional development program during the pilot year 2024-2025.

LONG TERM GOAL:

- Improve resident scholarly activity output within the University of Virginia physical medicine & rehabilitation residency program
  - By motivating and empowering residents with the confidence to initiate and complete scholarly activity projects through a resident-focused professional development program.

BACKGROUND:

- UVA PM&R residency professional development pilot program was implemented March 2024 to February 2025.
  - Structure: Monthly informal professional development sessions were lead and facilitated by a PM&R faculty member who introduced a topic followed by open forum discussion. Sessions were held 7-7:45am in-person in the PM&R department conference room and were considered optional for residents.
  - An October 2024 resident survey was completed by 9 out of 12 of the PGY-2 to PGY-4 residents, who provided positive responses to the programming but continued to show persistently poor attendance (average <50% resident attendance per session).

Plan

PROJECT GOAL:

- Increase motivation for residents to attend PM&R residency professional development sessions by facilitating autonomy, competence, and relatedness through structural changes in the professional development educational sessions.

THEORY:

- Self-determination theory suggests that motivation occurs when "three central needs are met: autonomy, competence, and relatedness" (Deptola 2021).

HYPOTHESIS:

- Resident attendance of PM&R residency professional development sessions will increase by adjusting session structure to improve resident motivation by facilitating autonomy, competence, and relatedness (self-determination theory).

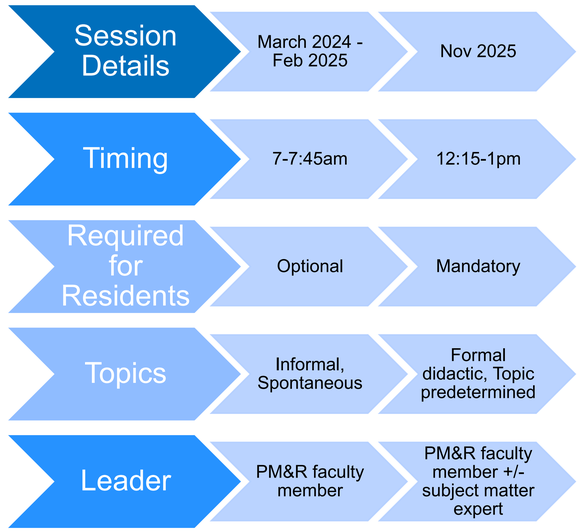

Figure 1. Project intervention. In order to encourage improved attendance, structural changes were implemented within the UVA PM&R residency professional development program in November 2025.

INTERVENTION:

- Resident professional development sessions will be better tailored to timing and location that is ideal for residents (autonomy) based on resident feedback. Topics will be predetermined (competence). Leaders will consist of both subject matter experts and PM&R core faculty (relatedness).

MEASURES:

- Primary: Resident attendance of professional development sessions
- Secondary: Self-rated resident confidence measures in workplace skills including research, writing, speaking, and productivity

Do

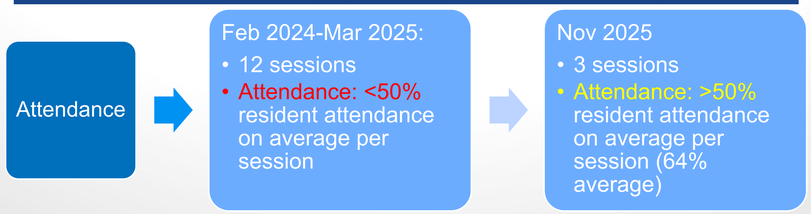

Figure 2. Resident attendance of professional development program. Attendance improved in November 2025.

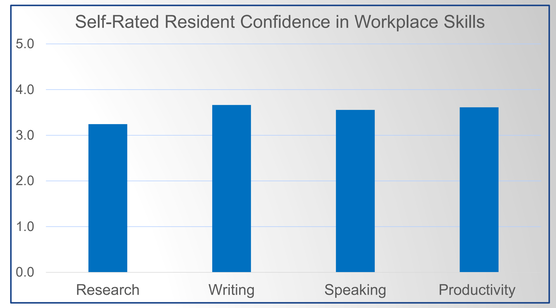

Figure 3. Confidence survey. This was administered to PGY-2 to PGY-4 residents prior to the start of the November 2025 professional development sessions. Residents reported the lowest confidence in ability to carry our research tasks. 9 out of 12 residents completed the survey. Likert scale 1-5 (poor-high confidence.

Study

- Study is limited given the number of sessions that were conducted, short time frame, and small cohort; however, resident attendance was excellent and a notable change from the 12-month prior pilot study.
- Informal resident feedback on programming was positive during and after the 3 sessions in November 2025. Residents asked for programming to continue and suggested topics for future sessions.

Act

- Implement a full professional development curriculum starting in the spring of 2026 (competence).
- Continue current program structure: 12:15pm timing, formal didactics with predetermined topics, PM&R faculty member to facilitate discussion, and subject matter experts when available.
- Continue to reassess resident subjective feedback in order to continue to meet the needs for autonomy, competence, and relatedness (self-determination theory).
- Evaluate quantity of overall scholarly activity in progress and completed publications and presentations.

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Identifying Barriers to Accessing Rehabilitation Services for High-Grade Glioma Patients

Julia M. Reilly, MD[1-2]

Internal Mentors: Lisa M. Ruppert, MD[1-2], Theresa A. Gillis, MD[1-2], Thomas J. Kaley, MD[3-4] External Mentor: Steven Kirshblum, MD[5-7]

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Background

Patients with primary brain tumors have significant functional impairments related to their disease and cancer treatment. For patients with high-grade gliomas (HGG) such as glioblastoma (GBM), prognosis is poor with a median survival of less than two years.[1]

Though the burden of functional impairments in this population is high, the utilization of rehabilitation services in the literature has remained low:

- In 2016, authors in Italy found that in the 12-month period after initial diagnosis for patients with malignant brain tumor, only 13% were referred for outpatient rehabilitation interventions.[2]
- In 2022, Australian authors found that only 22% of healthcare professionals routinely referred their high-grade glioma patients to rehabilitation physicians.[3]
- In 2020, at our institute high-grade glioma patients represented only 18% of the primary brain tumor referrals from the Neurology Department

There are several presumed reasons why oncologists may not refer patients with advanced cancer to rehabilitation. An article in 2017 highlighted the following themes:

- Inadequate clinic time to screen for symptoms
- Inadequate awareness and training to evaluate for rehabilitation needs
- Lack of recognition of functional deficits.[4]

Recent studies assessing barriers to rehabilitation in patients with brain tumors mostly note logistical barriers such as:

- Limited resources/funding for services
- Lack of referral options
- Long wait-times
- High costs for patients associated with accessing these services.[5-6]

Objectives

The goal of this project was to better understand why persons with high-grade glioma at our institute are not being routinely referred for rehabilitation services.

Methods

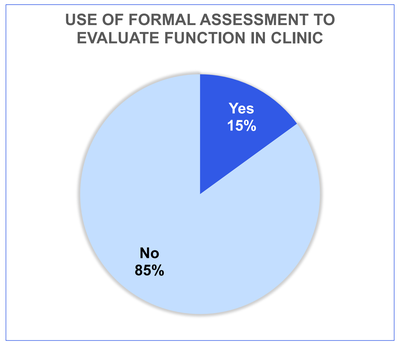
Neuro-Oncology/Neurology was selected as the target for this survey as they have the greatest continuity of care with these patients. An 11-item survey was developed to identify current screening practices for functional impairments, most common functional impairments, and referral patterns to rehabilitation services. Additional questions were added to determine the adequacy of other supportive services for these patients, i.e.: social work, case management, psychology, etc. The survey eventually passed an expedited IRB approval at out institute and was administered August-September 2025.

Results

Current Screening Practices for Functional Impairments

Demographics	
13 Responders	11 physicians 2 nurse practitioners
Years of Experience	6-10 years: 54% 10-20 years: 46%

Do you have time to screen for impairments in clinic?	
Often (67-100%)	38%
Sometimes (34-66%)	23%
Rarely (0-33%)	38%



Top Functional Impairments Seen in HGG Patients

Impairment	% Response
Cognitive Impairment	100%
Weakness/Gait Dysfunction	92%
Fatigue	77%
Mood Impairment	69%
Visual Deficit	31%
Headache	23%
Sensory Deficit	15%
Bladder Dysfunction	8%
Other: Seizures	8%

Barriers to Rehabilitation Medicine Referrals

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Patients are not interested in referrals	23%	54%	15%	8%	0%
Strain on patient time and resources	0%	8%	23%	69%	0%
Not enough availability/access	0%	0%	39%	39%	23%
Not a routine referral in my practice	31%	46%	15%	8%	0%
Not enough time in clinic to assess for functional needs/referrals	15%	46%	23%	8%	0%
Not enough evidence to suggest these interventions are helpful	39%	46%	15%	0%	0%

Barriers to Therapy Referrals (Physical/Occupational/Cognitive)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Patients are not interested in referrals	31%	62%	0%	8%	0%
Strain on patient time and resources	0%	31%	0%	69%	0%
Not enough availability/access	0%	0%	8%	39%	31%
Not a routine referral in my practice	54%	39%	0%	8%	0%
Not enough time in clinic to assess for functional needs/referrals	15%	62%	15%	8%	0%
Not enough evidence to suggest these interventions are helpful	39%	54%	8%	0%	0%

Results continued

Does the hospital provide adequate support in the following domains?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Cognitive Rehabilitation (OT, SLP, Neuropsychology)	15%	54%	23%	8%	0%
PT/OT	0%	31%	23%	39%	8%
Rehabilitation Medicine	0%	23%	8%	62%	8%
Social Work	23%	23%	23%	31%	0%
Case Management	23%	15%	46%	15%	0%
Palliative Care	0%	15%	23%	54%	8%
Psychiatry	8%	15%	23%	54%	8%
Psychology	8%	31%	46%	15%	0%

Recommendations

Our results show similar findings to other studies that examined access to rehabilitation and supportive services for patients with brain tumors. The biggest barriers were found to be financial strain/time strain and lack of access to services.

In free text responses, responders noted concern for access time, limited services in our regional sites, limited mobility of patients in presenting to appointments, and lack of communication with referring provider after appointment.

To address the findings from this survey, we will aim to:

1.) Develop a system to expedite primary brain tumor referrals to be seen within two weeks of referral (in-person or virtually)

2.) Continue to grow our multidisciplinary clinics in which Rehabilitation Medicine clinics are co-located within the same space as Neuro-oncology clinics for same-day referrals and ease of follow-up

3.) Develop a network of external therapy locations near our regional sites for high-quality physical/occupational/cognitive therapy

4.) Develop a patient/caregiver-facing survey to assess functional needs and potential referral for rehabilitation services

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Implementing “Procedure Cards” in Ultrasound-Guided Injection Clinic

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MetroHealth Rehabilitation Institute / Case Western Reserve University, Cleveland, Ohio
Internal Mentor: Richard Wilson, MD, MS
External Mentor: Thomas Watanabe, MD Jefferson Moss-Magee Rehabilitation, Elkins Park, PA

Background

- At MetroHealth, clinical staff hiring and deployment is done centrally. A physician can have 5-6 different medical assistants that work with them in a single clinic over several months. Staff also work with several different physicians who may perform procedures differently. This is a challenge when setting up for and performing ultrasound-guided procedures, as staff are not able to remember the nuances of setting up for injections and working the ultrasound machine when these skills are practiced infrequently. As a result, clinic flow and efficiency suffers.

PLAN: Needs Assessment

Needs Assessment Survey:

- Discussion with clinical staff was had to discuss barriers to clinic flow and possible solutions.
- Clinical staff were then formally surveyed to determine challenges in assisting with the ultrasound-guided procedures.
- Their confidence was assessed on components of ultrasound-guided procedures that could result in improvements in clinical efficiency.

Needs Assessment Survey & Results

Needs Assessment Results: Staff consistently identified modifiable and non-modifiable factors that made assisting with ultrasound-guided procedures challenging:

- Modifiable: Creation of step-by-step directions or morning huddle for ultrasound machine use and tray set up
- Non-modifiable: Consistent staffing with the same staff member with the same provider

DO: Project Design

1. Creation of step-by-step guide to use the ultrasound machine

2. Creation of laminated “procedure cards” (Figure 1)

Ultrasound Machine Guide

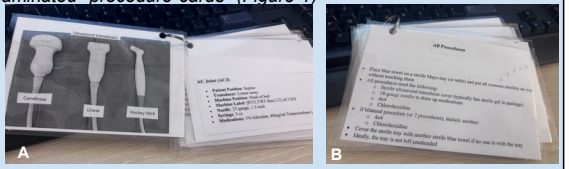

Figure 1 A & B: Example Procedure Cards

Table 1: Staff Confidence

	Needs Assessment (n=5)					Post Implementation (n=5)				
	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
I feel well prepared to assist with ultrasound-guided procedures	1	1	3			5				
I can successfully set up a sterile tray	3	1	1			5				
I can input patient identifiers into ultrasound machine to save images (or know where to look to figure out how)		1		2	2	2	1	1		1
I know what to put on the sterile tray based on review of patient medical record alone (or know where to look to figure out what to put on the tray)		1		1	3	4		1		
I know which medications are needed for the procedure based on review of patient medical record		1	2	1	1	4		1		
I feel well prepared to assist with ultrasound-guided procedures	1	2		1	1	4	1			

STUDY:

Outcome Measures:

1. Post-Implementation Survey
2. Number of patients seen 20 weeks pre- and post-implementation (weeks with vacation/conference days excluded)
3. Provider satisfaction

Results:

1. Staff confidence improved for all questions (Table 1)

Post-Implementation Survey & Results

2. 224 patients were seen in before implementation compared to 234 patients seen after implementation (1 day/week for 20 weeks) (4% improvement)
3. Provider doing much less with USGI procedure set up resulting in time to answer inbox messages and emails

ACT: Discussion

BARRIERS TO IMPLEMENTATION

- Staff buy in to different parts of the project and ultrasound-guided procedure set up was variable
- We obtained a new ultrasound machine a few months after implementation of the procedure cards

FUTURE DIRECTIONS AND NEXT STEPS

- Implementation of ultrasound machine guide and procedure card use by other providers in the system
- Decreasing scheduling time slots from 30 to 20 minutes, resulting in 7 additional patient injection slots per day

Auditing the Auditors: Examining the Correlation Between Surrogate Metrics And Department Financial Performance

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INTRODUCTION

- Financial viability is a critical component for any sustainable clinical department or program.
- For clinical rehabilitation medicine departments integrated into acute hospital settings, utilization of standard surrogate financial metrics may not fully capture the full extent of rehabilitation medicine department's financial performance and contribution to the overall health system performance.
- Surrogate inpatient metrics such as number of discharges, case mix index, length of stay, occupancy, and payor mix tell an important story, but without full financial context, they may not fully reflect the needs or opportunities for growth and/or efficiency in an acute inpatient rehabilitation unit.

METHODS

- Financial performance for the fiscal years 2023-2024 and 2024-2025 was reviewed and compared to surrogate financial metrics broken out by inpatient and outpatient practice settings.
- Inpatient metrics examined included discharges, case mix index, length of stay, occupancy, and payor mix, and an attempt will be made to quantify the impact of changes in each domain on actual P&L.
- Encounter numbers, new patient percentage, wRVU volume, procedural counts, payor mix, and access metrics were examined relative to outpatient performance.

RESULTS

	Domain	Correlation Strength
Outpatient	Encounter number	+++
	New Patient Percentage	+
	wRVU Count	++
	Procedural Count	++
	Patient Access	+
Inpatient	Discharges	+++
	Length of Stay	++
	Case Mix Index	+
	Occupancy	++
	Payor Mix	++

DISCUSSION

- Encounter volume had the strongest correlation with financial performance in the outpatient domain.
- Discharge volume had the strongest correlation with financial performance in the inpatient domain.
- Secondarily, factors which modify rates of payment and reimbursement do demonstrate modest impact on financial performance.
- Factors which incentivize individual performance (wRVU, access) are not fully aligned with the factors which impact department performance at a high level.

CONCLUSIONS

Surrogate metrics do provide a reasonable proxy for financial performance, but there are areas of misalignment between drivers of individual performance (efficiency) and drivers of department performance (volume and cost containment).

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Epic Fast Pass: A QI Initiative to Improve Outpatient PM&R Patient Access

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INTRODUCTION

- Timely outpatient access remains a challenge, affecting outcomes, satisfaction, and costs.
- Manual rescheduling of late cancellations is labor-intensive and limited by staffing.
- Patient portals like MyChart improve outcomes and engagement; 92% of Carilion PM&R patients are enrolled.
- Epic Fast Pass (EFP) automates offering earlier slots to waitlisted patients, reducing staff workload.
- From March 2024 – March 2025, the clinic had an 18% late cancellation rate within 48 hours of appointment, with only 51% of slots refilled, and an initial appointment 38-day wait time.
- The aim of this project is to implement EFP in the Carilion Clinic PM&R clinic to improve schedule utilization and access, reduce patient wait times, improve satisfaction, and decrease administrative burden (see figure1).

MATERIALS & METHODS

- EFP was launched in April 2025 to automate offering earlier appointment slots to waitlisted patients via MyChart, text, or email, giving patients 12 hours to accept (see figure 2).
- The system prioritizes urgent cases, longest wait times, patients without appointments, and those seeking to move appointments sooner.
- Open slots are identified twice daily for the preceding seven days, with multiple EFP offers per slot.
- Health Administrative Assistants (HAAs) monitor late cancellations within 24 hours of appointments and may override slots as needed.
- Key measures include late-cancelled slot rescheduling rates, waitlist reduction, EFP offer acceptance rates, patient satisfaction, and days sooner patients are seen.

RESULTS

Figure 1: Quintuple aims

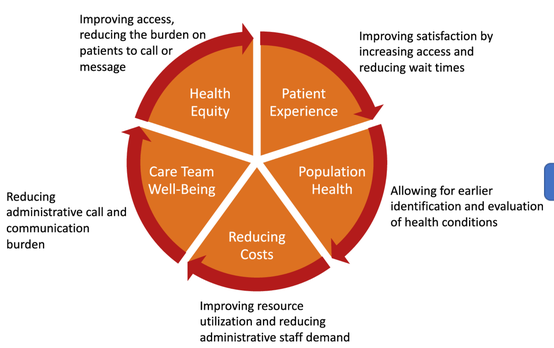


Figure 2: EFP Flow

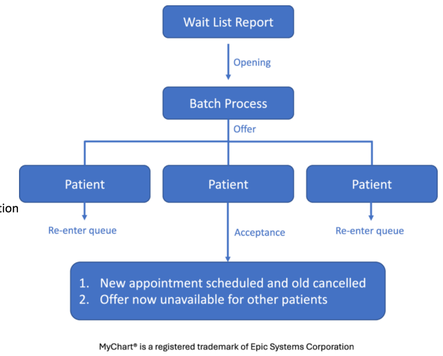


Figure 3:Correlation Between Fast Pass Utilization and Clinic Slot Fill Rates

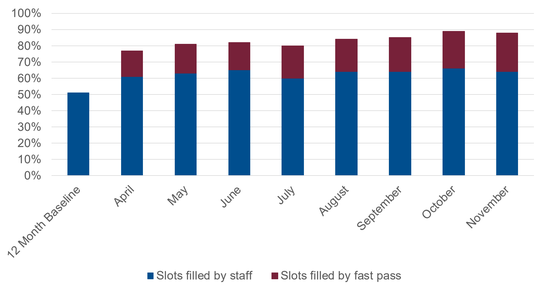


Figure 4: Monthly Wait List Patient Counts

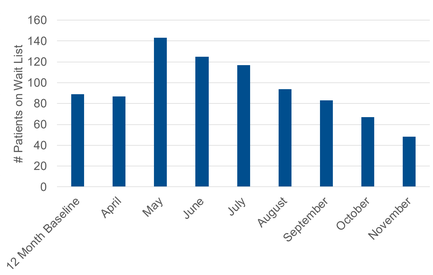


Figure 5: Epic Fast Pass Acceptance Rate

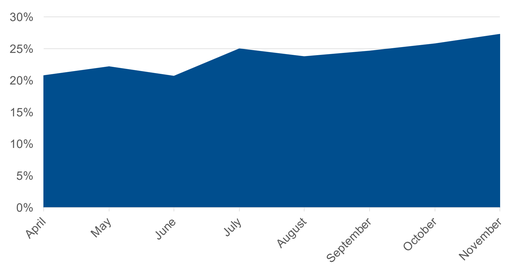


Figure 6: Patient Satisfaction Top Box Scores

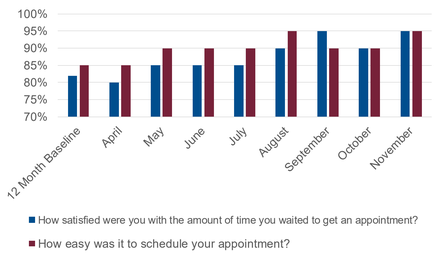


Figure 7: Days to First Appointment Decreased Over Time

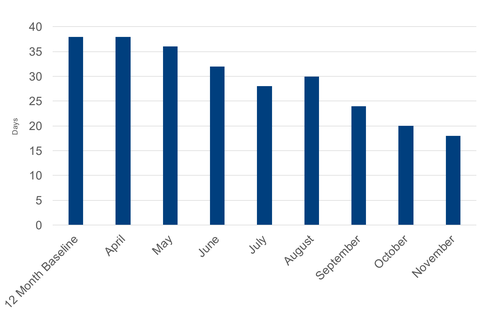
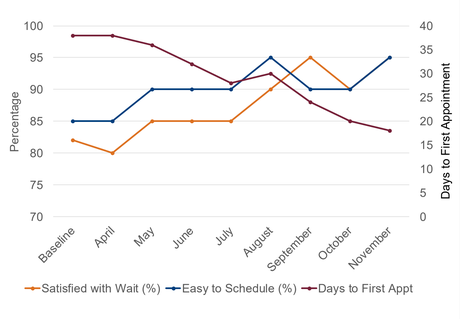


Figure 8: Patient Satisfaction versus Access Over Time



RESULTS (CONT.)

- Late cancellations averaged 17% (baseline 18%) from April–November 2025.
- When EFP was rolled out, all eligible patients were added to appropriate wait lists, which initially increased the number of patients on the wait list (from 87 in April to 143 in May).
- Administrative assistant assigned to EFP improved wait list management and scheduling.
- Patients unable to use EFP were flagged and prioritized for direct scheduling .
- Total slots filled increased from 51% (baseline) to 88% (November); Mean 83.3 (95% CI 81.9-84.6), p<.001.
- EFP filled 24% of slots by November (0% at baseline).
- EFP acceptance rates rose from 20.8% (April) to 27.3% (November); Press Ganey top box satisfaction with wait times improved from 82% to 95%; Mean 87.1 (95% CI 85.2-89), P=.023.
- Press Ganey top box ease of scheduling increased from 85% to 95%; Mean 91.9 (95% CI 90.7-93), p<.001.
- Days to first appointment decreased from 38 (baseline) to 18 (November); Mean 28.3 (95% CI 25.8-30.7) p=.006.
- The EFP program resulted in $151,081 in recovered revenue over an 8-month period.

CONCLUSION

- Combining technology with dedicated staff support streamlines workflows and enhances patient care.
- Prioritizing non-digital users ensures equitable access to care.
- Ongoing process evaluation to sustain operational and patient satisfaction gains.
- Financial benefits can support further patient-centered innovations.
- Anticipated reduction in staff-initiated patient calls as EFP use increases.

Enhancing PM&R Residency Program Visibility and Alumni Engagement

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Mentors: Jared Placeway, DO[1.2]; Victoria Whitehair, MD[1.2]; Dixie Aragaki, MD[3]; Greg Worsowicz, MD[4]
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[2]Case Western Reserve University School of Medicine, Cleveland, OH;
[3]UCLA Medical Center, Los Angeles, CA;
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Background:

- An estimated 62-90% of medical students use Doximity Residency Navigator (DRN), a social networking platform, when evaluating residency programs [1,2].
- DRN provides a true numerical ranking of residency programs based on physician peer nominations, resident ratings, and alumni ratings.
- The most common subjective factors influencing a medical student's NRMP rank order of a PM&R residency program include the perceived happiness of current residents, opportunities for ands-on procedure training, successful placement of recent graduates into fellowship, and perceived balance between service and education, work life balance, and camaraderie among both residents and faculty [3].
- In 2025, there were 114 ACGME accredited PM&R residency programs in the USA.
- In recent years, MetroHealth (MH) PM&R Residency Program's Doximity Ranking and Doximity Page have displayed opportunities for improvement.

Plan:

- Collect feedback from current residents and alumni by engaging residents and alumni to complete the Doximity Residency Satisfaction Survey.
- Increase the number of resident and alumni comments and reviews on the MH PM&R Residency Doximity Page.
- Improve MH PM&R Doximity ranking at the state, regional, and national level compared to prior year.

Do:

- Create a comprehensive alumni database including up to date contact information, practice type, and graduation year.
- Develop and share How to Doximity PowerPoint guides to assist residents, faculty, and alumni with Doximity account setup and survey completion.
- Increase awareness of the Doximity Residency Satisfaction Survey among current residents and alumni.
- Increase awareness of the 2025 Doximity Residency Nomination Survey among faculty and alumni.

Results of Study:

Figure 1. Resident and Alumni Engagement Increases MetroHealth PM&R Doximity Page Ratings and Reviews

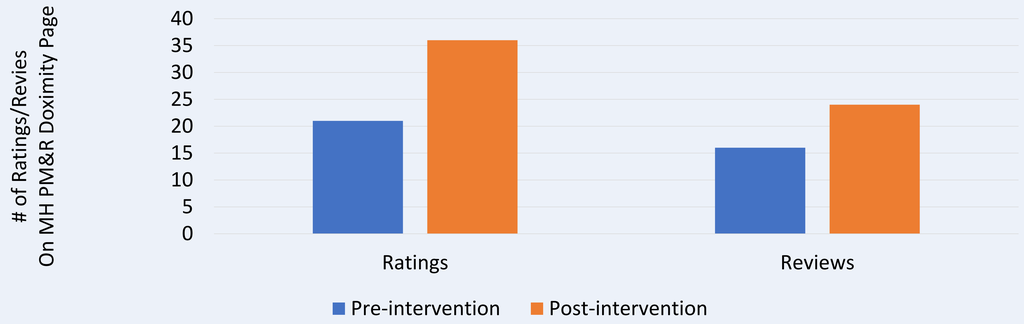

Figure 2. Resident and Alumni Engagement Increases Comments on MetroHealth PM&R Doximity Page

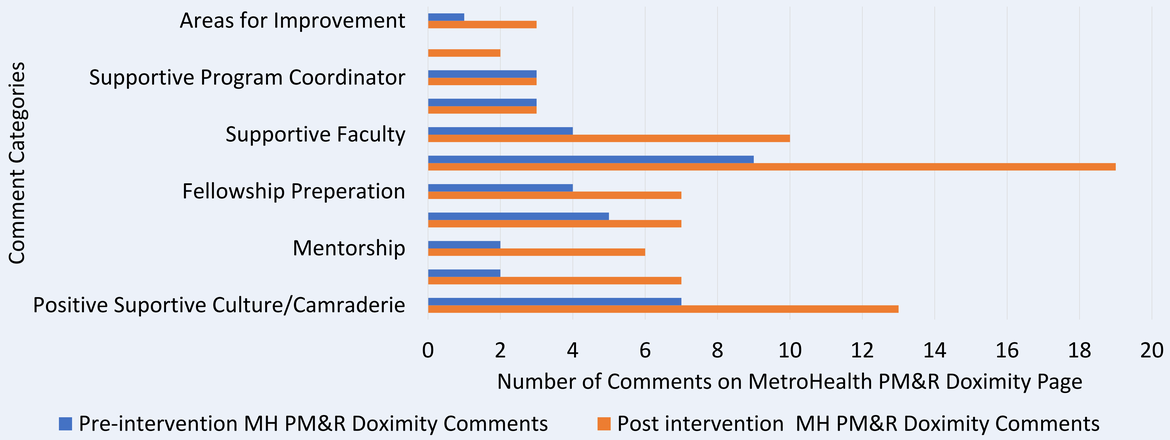

Figure 3. Faculty, Resident, and Alumni Engagement Improves Doximity Rankings

Year	MH PM&R Rank in USA	# USA PM&R Programs
2022	21	100
2023	14	107
2024	24	110
2025	23	114

Year	MH PM&R Rank in Midwest	# Midwest PM&R Programs
2022	5	25
2023	3	26
2024	6	26
2025	5	26

Year	MH PM&R Rank in Ohio	# Ohio PM&R Programs
2022	2	6
2023	1	6
2024	2	6
2025	1	6

Discussion:

- Targeted engagement of alumni, faculty, and residents—through development of an updated alumni database, creation of "How to Doximity" setup/survey guides, and proactive communication of these resources increased overall program engagement.
- Program engagement improved markedly post-intervention, with resident and alumni ratings increasing by 71% and commentary reviews rising by 50%, indicating both enhanced participation and broader qualitative feedback.
- Comments more frequently emphasized program strengths.
- Commentary analysis showed increased positive mentions of the alumni network, broad PM&R exposure, fellowship preparation, work–life balance, mentorship, procedural volume, and program culture/camaraderie.
- Engagement-focused interventions corresponded with ranking improvements: #1 Ohio, #5 Midwest, #23 USA.

Act:

- Maintain and update the alumni database annually to ensure accurate contact information and sustained engagement.
- Repeat yearly Doximity awareness campaigns for residents, faculty, and alumni, timed to survey release windows.
- Track annual trends in ratings, commentary volume, and thematic feedback to monitor longitudinal impact and areas for future growth or improvement.

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