A Five Year Longitudinal Intervention For Improving Medical Student Exposure to Physical Medicine and Rehabilitation

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WHERE DID WE START?
2011

• 373 positions in PM&R were offered in the National Residency Matching Program.
• US seniors filled only 48.3 % of these spots.
• 13 positions remained unfilled.
CURRENT CHALLENGES

* Lack of incorporation into curriculum
* Low student exposure
* Low student confidence in thorough musculoskeletal exam

* Fewer residency candidates
* Decreased physician aptitude in musculoskeletal dx and tx
* Improper referrals
* Underutilization of PM&R services

Goal: Increase exposure and interest.
Physical Medicine & Rehabilitation Expo

Learn what PM&R specialty is all about from faculty and residents during an interactive session.

Friday 11/11/11
3:00-5:00 PM
5th Floor Labs

Food will be provided.

Sponsored by MedFIT and PM&R Department
DESIGN

• 5 groups
• Rotating station format
• 15-minute stations
• Outcome measure:
  • Quantitative: Pre-test post-test surveys
  • Qualitative: Feedback survey
Rotating Stations

- Traumatic Brain Injury & Stroke
- Spinal Cord Injury
- Amputee & Pediatric Rehab
- EMG/Spasticity
- Sports Medicine/Musculoskeletal
Feedback: PM&R Medical Student Expo

1) Which PM&R station was of MOST interest to you? (Choose one.)
   - [ ] Traumatic Brain Injury & Stroke
   - [ ] Spinal Cord Injury
   - [ ] Sports/Musculoskeletal
   - [ ] EMG/Spasticity
   - [ ] Amputee & Pediatric Rehab

2) Which PM&R station was of LEAST interest to you? (Choose one.)
   - [ ] Traumatic Brain Injury & Stroke
   - [ ] Spinal Cord Injury
   - [ ] Sports/Musculoskeletal
   - [ ] EMG/Spasticity
   - [ ] Amputee & Pediatric Rehab

3) What did you like about the Expo?
   

4) What did you NOT like about the Expo?
   

5) What changes or additions would improve the Expo for next year?
   

6) Please comment on the Wound Care lecture given by Dr. Sunn in the auditorium at the beginning of the Expo. What did you like? What didn’t you like?
   

7) Please comment on the structure of the Expo. What were its strengths? What were its weaknesses?
<table>
<thead>
<tr>
<th>Time</th>
<th>Sample Schedule</th>
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</thead>
<tbody>
<tr>
<td>3:00-3:30</td>
<td>Introduction and Pretest</td>
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<tr>
<td>3:30-3:45</td>
<td>Traumatic Brain Injury &amp; Stroke</td>
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<tr>
<td>3:45-4:00</td>
<td>Spinal Cord Injury</td>
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<tr>
<td>4:00-4:15</td>
<td>Sports Medicine/Musculoskeletal</td>
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<tr>
<td>4:15-4:30</td>
<td>EMG/Spasticity</td>
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<tr>
<td>4:30-4:45</td>
<td>Amputee &amp; Pediatric Rehab</td>
</tr>
<tr>
<td>4:45-5:00</td>
<td>Closing Session and Posttest</td>
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</tbody>
</table>
Our clinical clerkship coordinator was present.

Students were supplied with information regarding:

- Elective Rotation
- Shadowing opportunities
- Mentorship
SETTING

- Medical education auditorium and learning labs.
PARTICIPANTS

• Each year, 12-15 residents and attendings volunteered.
• First year attendance: 40 medical students
• 2016 attendance: 83 students
IRB-approved Survey

Administered to students:
- before Expo
- after Expo

### Survey: Medical Student Exposure to Physical Medicine & Rehabilitation

1) How familiar are you with physical medicine & rehabilitation (PM&R)? (Choose one.)
   - I have not heard of PM&R at all.
   - I have heard of PM&R mentioned, but I am not very familiar with what it is.
   - I have heard of PM&R and am somewhat familiar with what it is.

2) Consider the following statement:
   “PM&R physicians and physiatrists are the same profession.” (Choose one.)
   - I disagree with this statement.
   - I am uncertain about the validity of this statement.
   - I agree with this statement.

3) The following procedures are regularly performed by PM&R physicians: (Check all that apply.)
   - Nerve conduction studies
   - Botox injections
   - Paracentesis
   - Fluoroscopic procedures
   - Cardiac catheterizations

4) It is not unusual for PM&R physicians to specialize in: (Check all that apply.)
   - Sports Medicine
   - Pain Medicine
   - Electrodiagnostics
   - Spinal Cord Injury
   - Pediatric Rehab
   - Traumatic Brain Injury
   - Electrodiagnostics
   - Alcohol and Drug Rehab

5) How likely are you to select PM&R as a career? 24 specialties are listed below. Please rank the specialties you are considering in the following manner:
   Write “1” beside all those specialties that you are actively considering;
   Write “2” beside those that you may be interested in but are uncertain about;
   Write “3” beside those that you considered but ruled out;
   Write “4” beside those that you have never considered.
   - Anesthesiology
   - Dermatology
   - Emergency Medicine
   - Family Medicine
   - General Preventive Medicine
   - Internal Medicine
   - Medical Genetics
   - Neurosurgery
   - Neurology
   - Nuclear Medicine
   - Obstetrics and Gynecology
   - Ophthalmology
   - Orthopaedic Surgery
   - Otolaryngology
   - Pathology
   - Pediatrics
   - Physical Medicine and Rehabilitation
   - Plastic Surgery
   - Psychiatry
   - Radiation Oncology
   - Radiology
   - Thoracic Surgery
   - General Surgery
   - Urology

6) Circle your medical school year:
   - First year
   - Second year
   - Third year
   - Fourth year
   - ___ ___ ___ ___
1) How familiar are you with physical medicine & rehabilitation (PM&R)? (Choose one.)

____ I have not heard of PM&R at all.
____ I have heard of PM&R mentioned, but I am not very familiar with what it is.
____ I have heard of PM&R and am somewhat familiar with what it is.
Q1. How familiar are you with physical medicine & rehabilitation (PM&R)?

- **I have heard of PM&R and am somewhat familiar with what it is.**
  - Before Expo: 93%
  - After Expo: 28%

- **I have heard of PM&R mentioned, but I am not very familiar with what it is.**
  - Before Expo: 58%
  - After Expo: 8%

- **I have not heard of PM&R at all.**
  - Before Expo: 8%
  - After Expo: 15%
2) Consider the following statement: "PM&R physicians and physiatrists are the same profession." (Choose one.)

____ I disagree with this statement.
____ I am uncertain about the validity of this statement.
____ I agree with this statement.
Results

Q2. Consider the following statement: “PM&R physicians and physiatrists are the same profession.”
Q3. The average score on the questions assessing the students’ knowledge of PM&R procedures improved from 43% to 75%. Score was improved by an average of 19%.

Second year data: Score improved from 52% to 87%. Score improved by an average of 35%.
Results

The average score on the questions assessing the students’ knowledge of PM&R specialties improved from 66% to 95%. Score was improved by an average of 29%.

Second year data: Score improved from 71% to 98%. Score improved by an average of 27%.
Trend: Students ranking PM&R highly were likely to also rank Family Medicine, Orthopaedic Surgery, and Anesthesiology highly.
Q5. How likely are you to select PM&R as a career?

- Actively considering: 58% before Expo, 58% after Expo
- Interested, but uncertain: 43% before Expo, 43% after Expo
- Considered, but ruled out: 8% before Expo, 0% after Expo
- Never considered: 30% before Expo, 0% after Expo
OUTCOMES

• Goal: Increase exposure and interest
• Other benefits:
  • Lay a foundation of general knowledge
  • Increase elective enrollment
  • Increase applicants
<table>
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<tr>
<th>Year</th>
<th># rotating</th>
<th># matching</th>
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<tbody>
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<tr>
<td>2010-2011</td>
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<td>0</td>
</tr>
<tr>
<td>2011-2012</td>
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<td>1</td>
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<td>2013-2014</td>
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<tr>
<td>2014-2015</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>2015-2016</td>
<td>13</td>
<td>4</td>
</tr>
</tbody>
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A sample of feedback from the qualitative surveys:

• “… the most well-organized event that I have ever seen at the medical school…we wish that they would do this for every field… cool idea and executed very effectively and efficiently.”

• “… well structured. Presentations perfect length.”

• “…attendings/residents very excited about their field”

• “Did not like the time Friday afternoon”

• “The rotations should have been longer”
FIVE SUCCESSFUL YEARS SO FAR!
WHERE DO WE GO FROM HERE?
UNIQUE ROLE OF THE PHYSIATRIST

Team based approach to patient care

Experts in diagnosing and treating MSK and Neurological disorders

Focus on functionality rather than disability
Current Methods of Exposure

- Elective rotations in Physical Medicine and Rehabilitation
- Word of Mouth
- Student Exposition
FUTURE DIRECTIONS

- Extracurricular musculoskeletal clinical workshops
- Incorporation of PMR topics into medical school curriculum
- Physical Medicine and Rehabilitation student expositions
Study published in 2016 discusses the implementation of an annual extra curricular musculoskeletal workshop at the University of Toronto run by Physical Medicine and Rehabilitation Attendings and Residents.

Results:
- Increased confidence in musculoskeletal exam skills
- Increased understanding of the field of Physical Medicine and Rehabilitation
- Increased interest within the field
Two separate studies in the literature have discussed the outcomes of a mandatory 2 week Physical Medicine and Rehabilitation clerkship during 4th year of medical school.

Results:

First study showed a greater understanding of the Physical Medicine Rehabilitation role but not interest an interest within the field.

Second study showed enhanced 4th year medical student self reported clinical decision making skills.
FUTURE DIRECTIONS

Mandatory Rotations may not always be feasible. Consider incorporation of Physical Medicine and Rehabilitation topics into the first and secondary year curriculum.

Spinal Cord Injury incorporation into Neurology and Physiology Lectures
Traumatic Brain Injury incorporation Neurology and Endocrine Lectures
UNIVERSITY OF MIAMI STUDENT EXPOSITION: MOVING FORWARD

Musculoskeletal exam workshops within the rotating stations

Volunteer opportunities for Medical Students to work alongside PMR physicians at different sports events

Personal stories from former patients
EMG machine, Procedure station, U/S, P&O station with assistive devices
REFERENCES

• National Resident Matching Program. “Results and Data- 2011 Main Residency Match.” April 2011. www.nrmp.org

• https://freida.ama-assn.org/Freida/user/programSearchSubmitDispatch.do


Thank You

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