Introduction

• Musculoskeletal (MSK) injuries are among the top reasons Americans seek medical care (Hisao et al., 2010)
  • 23% of patient visits to Primary care physicians (PCPs) are MSK related (Kahl, 1997)
  • 20% of visits to Emergency departments are MSK related (DeLonge et al., 1990)
• 57 of 122 (46%) US medical schools do not require ANY formal course or clerkship in MSK medicine (D'Caprio et al., 2003)
• Problem:
  • Lack of confidence evaluating and treating MSK injuries (DiGiovanni et al., 2012)
  • Lack of knowledge in MSK medicine (Freedman & Bernstein, 1998)
  • Discrepancy between MSK care provided by PCPs & what specialists suggest (Buchbinder et al., 2013)
• The overall aim of this project was to create, distribute, and evaluate an online learning module for Primary Care and Emergency Medicine physicians regarding common MSK injuries of the knee.

Project Approach

Step 1. Needs Assessment
• A 41-question survey was constructed using survey monkey
• Distributed to Family Medicine (FM), Internal Medicine (IM), and Emergency Medicine (EM) physicians
• University of Colorado School of Medicine
• Given approximately 3 weeks to complete
• 58 surveys returned completed

Confidence with Knee Injuries

<table>
<thead>
<tr>
<th>Knee Injury</th>
<th>Not at all confident</th>
<th>Somewhat confident</th>
<th>Confident</th>
<th>Very confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Meniscus Tear</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Patellofemoral pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. ACL tear (requested by participants)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Patella tendinitis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Osteoarthritis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Physicians were asked to rank their confidence in the order of which they would most like them to be included in a learning module.

Section 1. History and Physical Examination

Figure 2. The first section of the learning module was broken down into History and Physical Exam of each knee injury. A. The History slides included tabs for (1) Patient Demographics (2) Mechanism of Injury (3) Signs and Symptoms (4) Pathophysiology. B. The Physical Examination slides included tabs for (1) Inspection, Palpation, Range of Motion, & Strength findings and (2) Maneuvers used to evaluate for specific injuries.

Section 2. Case Studies

Figure 3. The second section of the learning module consisted of two case studies. Case Study 1 included a traumatic vignette that differentiates between ACL tears and traumatic meniscus tears. Case Study 2 included a non-traumatic vignette that differentiates between degenerative meniscus tears and PFFS. Each case study consisted of answers to historical questions (3a), developing a differential diagnosis, determining which maneuvers to perform, results of the maneuvers (3b) and a final diagnosis.

Step 2. Creating the Learning Module
• Created using Adobe Captivate 8
• Intended to last approximately 30-45 minutes
• Included a voice over & interactive quiz questions
• 10 question pre-test and post-test
• Post-test included survey for subjective feedback

Results & Feedback

Figure 4. The pre-test was comprised of 10 multiple choice questions. The mean score for the pre-test was 59.2%

IT Problems
• Post test didn’t work/unable to log in
• University computer security
• Didn’t have flash player installed
• Struggling opening module on certain browsers

Conclusions & Future Directions

• Technical issues made a large impact on evaluating the effectiveness of the learning module, including lack of post-test data and validity of time spent on the module
• However, overall, it was well received by participants
  • Desire to disseminate among staff
  • Appropriate target audience
  • Videos were helpful– better than a textbook

Future Directions
• Use in combination with a hands-on class focused on physical exam and maneuvers
• Create a learning module focused on common shoulder injuries

References & Acknowledgements


The authors would like to thank Janet Corral, PhD, Fred Gonzales and Jessica Kahl for their technical support, assistance with data analysis, and contribution of images.