



<b>Body System: Musculoskeletal</b>		
<b>Session Topic: Fracture Management</b>		
<b>Educational Format</b>		<b>Faculty Expertise Required</b>
<b>REQUIRED</b>	Interactive Lecture	Expertise in the field of study. Experience teaching in the field of study is desired. Preferred experience with audience response systems (ARS). Utilizing polling questions and engaging the learners in Q&A during the final 15 minutes of the session are required.
<b>OPTIONAL</b>	Problem-Based Learning (PBL)	Expertise teaching highly interactive, small group learning environments. Case-based, with experience developing and teaching case scenarios for simulation labs preferred. Other workshop-oriented designs may be accommodated. A typical PBL room is set for 50-100 participants, with 7-8 each per round table. <u>Please describe your interest and plan for teaching a PBL on your proposal form.</u>
<b>Professional Practice Gap</b>	<b>Learning Objective(s) that will close the gap and meet the need</b>	<b>Outcome Being Measured</b>
<ul style="list-style-type: none"> <li>• There exist knowledge gaps to effectively assess injured bones or soft tissue to determine the stage and severity of the injury and determine the most effective mechanism of treatment.</li> <li>• There exist knowledge gaps in the evaluation of appropriate imaging modalities for patients with acute or chronic injuries that require diagnostic imaging evaluation.</li> <li>• Fractures are associated with domestic violence less frequently than other injuries, the significant number of patients presenting to clinics warrants the need to ask patients whether this is the case and to provide adequate referral as needed.</li> <li>• Physicians have knowledge and practice gaps with regard to custom splinting;</li> </ul>	<ol style="list-style-type: none"> <li>1. Assess injured bones or soft tissue to determine the stage and severity of the injury and the most effective mechanism of treatment.</li> <li>2. Evaluate appropriate imaging modalities for patients with fractures that require diagnostic imaging evaluation.</li> <li>3. Determine appropriate indications for fracture immobilization.</li> <li>4. Provide adequate pain control, with monitoring and follow-up if necessary.</li> <li>5. Coordinate patient education and follow-up care.</li> </ol>	Learners will submit written commitment to change statements on the session evaluation, indicating how they plan to implement presented practice recommendations.



casting and splinting efficacy; and determining most appropriate and cost effective supplies			
<b>ACGME Core Competencies Addressed</b> (select all that apply)			
X	Medical Knowledge		Patient Care
X	Interpersonal and Communication Skills		Practice-Based Learning and Improvement
	Professionalism		Systems-Based Practice
<b>Faculty Instructional Goals</b>			
<p>Faculty play a vital role in assisting the AAFP to achieve its mission by providing high-quality, innovative education for physicians, residents and medical students that will encompass the art, science, evidence and socio-economics of family medicine and to support the pursuit of lifelong learning. By achieving the instructional goals provided, faculty will facilitate the application of new knowledge and skills gained by learners to practice, so that they may optimize care provided to their patients.</p> <ul style="list-style-type: none"> <li>• Provide up to 3 evidence-based recommended practice changes that can be immediately implemented, at the conclusion of the session; including SORT taxonomy &amp; reference citations</li> <li>• Facilitate learner engagement during the session</li> <li>• Address related practice barriers to foster optimal patient management</li> <li>• Provide recommended journal resources and tools, during the session, from the American Family Physician (AFP), Family Practice Management (FPM), and Familydoctor.org patient resources; those listed in the <u>References</u> section below are a good place to start <ul style="list-style-type: none"> <li>○ Visit <a href="http://www.aafp.org/journals">http://www.aafp.org/journals</a> for additional resources</li> <li>○ Visit <a href="http://familydoctor.org">http://familydoctor.org</a> for patient education and resources</li> </ul> </li> <li>• Provide recommendation for assessing injured bones or soft tissue to determine the stage and severity of the injury and the most effective mechanism of treatment.</li> <li>• Provide recommendations for appropriate imaging modalities for patients with injuries that require diagnostic imaging evaluation.</li> <li>• Provide recommendations for evaluating patients presenting with fractures for domestic violence, and coordinate appropriate referral as needed.</li> <li>• Provide recommendations regarding appropriate indications for fracture immobilization.</li> <li>• Provide recommendations regarding adequate pain control, with monitoring and follow-up if necessary.</li> <li>• Provide strategies for coordinating patient education and follow-up care.</li> <li>• Provide recommendations regarding guidelines for Medicare reimbursement.</li> <li>• Provide recommendations to maximize office efficiency and guideline adherence to the diagnosis and management of fractures</li> <li>• Provide an overview of newly available treatments, including efficacy, safety, contraindications, and cost/benefit relative to existing treatments.</li> </ul>			

**Needs Assessment**



Family physicians frequently provide care for patients who present with soft tissue injuries and fractures. In 2010, family physician had over 11.2 million office visits where a splint or wrap was ordered for treatment of a soft tissue injury or fracture.<sup>1</sup> When patients present with acute or chronic musculoskeletal injuries, family physicians can employ a number of examination techniques to assess such factors as range of motion, stability, bone alignment and soft tissue swelling or masses.

Finger fractures and dislocations may occur during daily activities, such as work, but usually occur during participation in sporting activities. Finger and metacarpal fractures are the most common sports-related fractures in adults and adolescents. If not treated properly, finger fractures and dislocations can have significant consequences, including poor function, chronic pain, stiffness, and deformity.<sup>2</sup>

Elbow, wrist, and hand injuries are some of the most common overuse injuries in pediatric athletes, which may be at least partially due to excessive tension and force on their growth plates. Hand, wrist, and elbow injuries are also common in adults, especially workplace-related injuries and athletes. Splints, braces, or casts (or even surgery and/or physical therapy in some cases) may be necessary to mitigate pain and help patients regain stability in the elbow, wrist, or hand.<sup>3,4</sup>

Upper extremity fractures are often evaluated by primary care physicians at the patient's initial presentation or at follow-up after the emergency department. These fractures account for approximately 2 million emergency department visits annually.<sup>5</sup>

Clavicle fractures constitute 5 to 10 percent of all fractures. Most occur in men younger than 25 years; however, they are also more common in men older than 55 and in women older than 75.<sup>6</sup>

Primary care physicians are often the first clinicians patients see for foot injuries, and fractures are among the most common foot injuries they evaluate.<sup>7</sup>

Stress fractures are common injuries that begin with repetitive and excessive stress on the bone. This leads to the acceleration of normal bone remodeling, the production of microfractures (caused by insufficient time for the bone to repair), the creation of a bone stress injury (i.e., stress reaction), and, eventually, a stress fracture.<sup>8</sup>

While fractures are associated with domestic violence less frequently than other injuries, the significant number of patients presenting to clinics warrants the need to ask patients whether this is the case and to prove adequate referral as needed.<sup>9-12</sup>

Data from a recent American Academy of Family Physicians (AAFP) CME Needs Assessment survey indicate that family physicians have statistically significant and meaningful gaps in the medical skill necessary to employ efficacious musculoskeletal exam techniques, including the appropriate use of diagnostic imaging; and to optimally treat fractures.<sup>13</sup> Additionally, an AAFP Common Medical Procedures CME Needs Assessment Survey, 11.3% of those responding indicated a need for basic training with regard to casting and splinting, and 9.6% indicated a need for advanced training with regard to casting and splinting.<sup>14</sup> CME outcomes data from 2015



AAFP FMX *Splinting, Wrapping, Casting and Taping* sessions suggest that physicians have practice gaps with regard to custom splinting; casting and splinting efficacy; and determining most appropriate and cost effective supplies.<sup>15</sup>

Furthermore, the 2010 AAFP *Practice Profile Survey* reports that the most common imaging modalities used in family physicians' practices are electrocardiography tests (which 94% of respondents offer) and x-rays (which 46% offer). Respondents cite the most common reasons for not having these mechanisms available as the equipment being too expensive and not desiring the diagnostic procedures.<sup>16</sup> Qualitative research indicates, however, that "patient convenience and satisfaction are improved by the presence of on-site radiography. Traveling to another facility, especially for the elderly and the disabled, places an addition burden on patients and caretakers."<sup>17</sup> The AAFP confirms that family physicians are not only well trained and well positioned to offer initial diagnostic imaging and interpretation, but their use of imaging modalities enhances patient access and care.<sup>18</sup>

Physicians may improve their ability to optimally manage fractures by engaging in continuing medical education that provides practical integration of current evidence-based guidelines and recommendations into their standards of care, including, but not limited to the following:<sup>2,5-8,19</sup>

- Finger fractures involving greater than 30 percent of the intra-articular surface should be referred to an orthopedic or hand surgeon.
- Following reduction of a proximal interphalangeal dislocation, short-term splinting in flexion with early active range of motion and strengthening is preferable to prolonged immobilization.
- Treatment of a mallet fracture includes splinting the distal interphalangeal joint in extension; various splint types are of equal benefit.
- Displaced, oblique, or spiral finger fractures should be referred to a hand surgeon.
- Nonsurgical treatment of displaced intra-articular fractures of the distal radius is associated with an increased risk of radiocarpal arthritis.
- Expert opinion suggests that even minimal articular incongruity is associated with increased complications
- Isolated ulnar shaft fractures that are not displaced by more than 50 percent of the bone diameter and that are angulated less than 10 degrees can be treated with a functional brace or short arm cast.
- Early mobilization is favored in the treatment of Mason type I radial head fractures.
- There is no benefit of casting in the initial treatment of Mason type I radial head fractures.
- Nonoperative treatment is preferred for nearly all acute, nondisplaced midshaft clavicle fractures.
- Treatment with an arm sling is preferred over a figure-of-eight dressing for acute midshaft clavicle fractures because it is better tolerated and leads to similar outcomes.
- Displaced midshaft clavicle fractures may be managed nonoperatively, but plate fixation should be considered.
- Nonoperative treatment is preferred for distal clavicle fractures because outcomes are the same whether or not bony union is achieved.
- The use of musculoskeletal ultrasonography may be considered to diagnose subtle metatarsal fractures.



- Nondisplaced or minimally displaced (less than 3 mm) fractures of the second to fifth metatarsal shafts with less than 10° of angulation can be treated conservatively with a short leg walking boot, cast shoe, or elastic bandage, with progressive weight bearing as tolerated.
- The Ottawa Ankle and Foot Rules should be used to help determine whether radiography is needed when evaluating patients with suspected fractures of the proximal fifth metatarsal.
- Early surgical management of a Jones fracture allows for an earlier return to activity than nonsurgical management and should be strongly considered for athletes or other highly active persons.
- Nondisplaced or minimally displaced (less than 2 mm) fractures of the lesser toes with less than 25% joint involvement and no angulation or rotation can be managed conservatively with buddy taping or a rigid-sole shoe.
- Plain radiography should be the initial imaging modality to diagnose stress fractures.
- Magnetic resonance imaging is preferred over bone scintigraphy for the diagnosis of stress fractures because of greater specificity.
- Patients with tibial stress fracture may use a pneumatic compression device to reduce the time to resumption of full activity.
- Bone stimulators should not be used for the treatment of most stress fractures.
- Shock-absorbing orthotics and footwear modification may reduce the occurrence of lower extremity stress injury.

These recommendations are provided only as assistance for physicians making clinical decisions regarding the care of their patients. As such, they cannot substitute for the individual judgment brought to each clinical situation by the patient's family physician. As with all clinical reference resources, they reflect the best understanding of the science of medicine at the time of publication, but they should be used with the clear understanding that continued research may result in new knowledge and recommendations. These recommendations are only one element in the complex process of improving the health of America. To be effective, the recommendations must be implemented. As such, physicians require continuing medical education to assist them with making decisions about specific clinical considerations.

Physicians can improve patient satisfaction with the referral process by using readily available strategies and tools such as, improving internal office communication, engaging patients in scheduling, facilitating the appointment, tracking referral results, analyzing data for improvement opportunities, and gathering patient feedback.<sup>20,21</sup>

#### Resources: Evidence-Based Practice Recommendations/Guidelines/Performance Measures

- Common finger fractures and dislocations<sup>2</sup>
- Childhood and adolescent sports-related overuse injuries<sup>3</sup>
- Braces and splints for musculoskeletal conditions<sup>4</sup>
- Common forearm fractures in adults<sup>5</sup>
- Clavicle fractures<sup>6</sup>
- Diagnosis and Management of Common Foot Fractures<sup>7</sup>



- Stress fractures: diagnosis, treatment, and prevention<sup>8</sup>
- Splints and casts: indications and methods<sup>22</sup>
- Principles of casting and splinting<sup>23</sup>
- Appropriate and safe use of diagnostic imaging<sup>24</sup>
- ACR Appropriateness Criteria: Musculoskeletal Imaging Criteria<sup>25</sup>
- ACR Practice Guidelines: Musculoskeletal<sup>26</sup>
- Intimate partner violence<sup>12</sup>
- Adding health education specialists to your practice<sup>27</sup>
- Envisioning new roles for medical assistants: strategies from patient-centered medical homes<sup>28</sup>
- The benefits of using care coordinators in primary care: a case study<sup>29</sup>
- Engaging Patients in Collaborative Care Plans<sup>30</sup>
- Encouraging patients to change unhealthy behaviors with motivational interviewing<sup>31</sup>
- Integrating a behavioral health specialist into your practice<sup>32</sup>
- Simple tools to increase patient satisfaction with the referral process<sup>20</sup>
- FamilyDoctor.org. Dealing With Sports Injuries (patient education)<sup>33</sup>

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