

# GUIDELINES & PROTOCOLS

## ADVISORY COMMITTEE

### Ankle Injury – X-Ray for Acute Injury of the Ankle or Mid-Foot

Effective Date: January 30, 2009

#### Scope

The purpose of the guideline is to avoid unnecessary x-rays in non-pregnant adults (age 19+) with acute ankle and mid-foot injuries when they present for the first time in an ambulatory setting and have no sensory or cognitive impairment.

#### Diagnostic Codes

845 sprains and strains of ankle and foot; 824 ankle fracture; or 825 fracture of metatarsal bones

#### Diagnosis/Investigation

This guideline update is consistent with the Ottawa Ankle Rules (OAR)<sup>1</sup> which have been validated in national and international studies.<sup>3-11</sup>

Ankle x-rays are only required if there is pain in the malleolar zone **as well as** any one of:

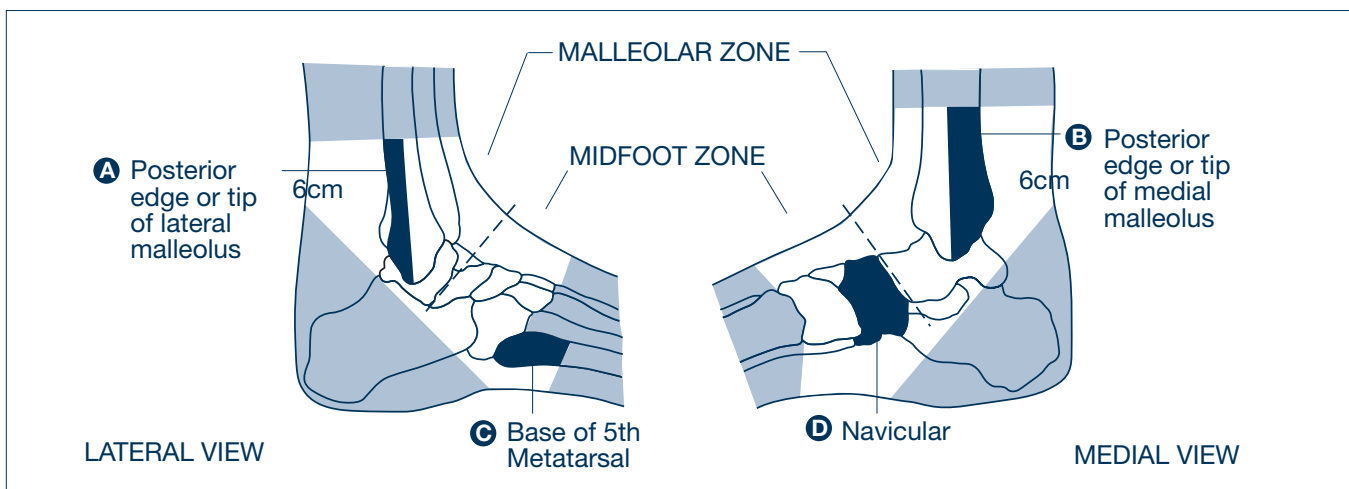
- Bone tenderness at A; **or**
- Bone tenderness at B; **or**
- Inability to bear weight both immediately and in the emergency department (four steps taken independently, even if limping).

Foot x-rays are only required if there is pain in the mid-foot zone **as well as** any one of:

- Bone tenderness at C; **or**
- Bone tenderness at D; **or**
- Inability to bear weight both immediately and in the emergency department (four steps taken independently, even if limping).

Whether or not an x-ray is ordered, it is recommended that patients be advised to seek follow-up care if their pain or ability to bear weight has not improved in seven days.

**Figure 1: Zones of the ankle and mid-foot according to the Ottawa Ankle Rules<sup>1</sup>**



#### Rationale

Acute ankle injuries are one of the most common reasons for patients presenting to emergency departments. Historically most patients have then been subjected to x-rays of the ankle and/or mid-foot although only about 15% have clinically significant fractures.<sup>1,2</sup>

This guideline is consistent with the Ottawa Ankle Rules (OAR), which were developed by researchers at the University of Ottawa and the Ontario Ministry of Health, for adult patients (19+ years) in an attempt to limit x-rays of the foot and ankle to those most likely to have suffered fractures. The OAR were proven effective when applied by over 200 physicians of varying experience on almost 6500 patients at eight hospitals in Ontario<sup>1</sup> and have since been validated in international studies.<sup>3-11</sup>

The OAR are a highly sensitive tool for detecting ankle and mid-foot fractures. A 2003 European systematic review of 27 studies, enrolling over 15,500 patients, reported a sensitivity of almost 100% and projected a reduction in x-rays of 30% to 40% if the OAR were consistently applied. Specificity varied from 28% to 48% due to variability in clinical skill, setting, and patient recall.<sup>12</sup>

A fracture that can be found using plain x-rays is the only criterion that has been considered in this guideline. Some of the fractures detected by plain x-rays may not require treatment, while plain x-rays do not detect some uncommon but significant fractures. In the original study, “Ten (0.5%) of the 2033 patients in the follow up group had a fracture diagnosed after discharge from the emergency department....all were contacted after six months and all had healed without delay or long term effects.”<sup>11</sup>

## References

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This guideline is based on scientific evidence current as of the Effective Date.

This guideline was developed by the Guidelines and Protocols Advisory Committee, approved by the British Columbia Medical Association and adopted by the Medical Services Commission.

### The principles of the Guidelines and Protocols Advisory Committee are to:

- encourage appropriate responses to common medical situations
- recommend actions that are sufficient and efficient, neither excessive nor deficient
- permit exceptions when justified by clinical circumstances

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The Clinical Practice Guidelines (the “Guidelines”) have been developed by the Guidelines and Protocols Advisory Committee on behalf of the Medical Services Commission. The Guidelines are intended to give an understanding of a clinical problem, and outline one or more preferred approaches to the investigation and management of the problem. The Guidelines are not intended as a substitute for the advice or professional judgment of a health care professional, nor are they intended to be the only approach to the management of clinical problems.