

The Effect of Triage-Based Application of the Ottawa Ankle and Foot Rules (OAR/OFR) on the Number of Radiographs Ordered: A Pilot Study

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Introduction:

Reducing unnecessary testing is required to lessen the cost burden of medical care, but decreasing utilization will depend on consistently following evidence-based clinical decision rules. The Ottawa foot and ankle rules (OFAR) are long-standing evidence-based rules used to predict fractures. However, radiographs are frequently ordered for acute ankle injuries despite OFAR exam findings suggesting no fracture.

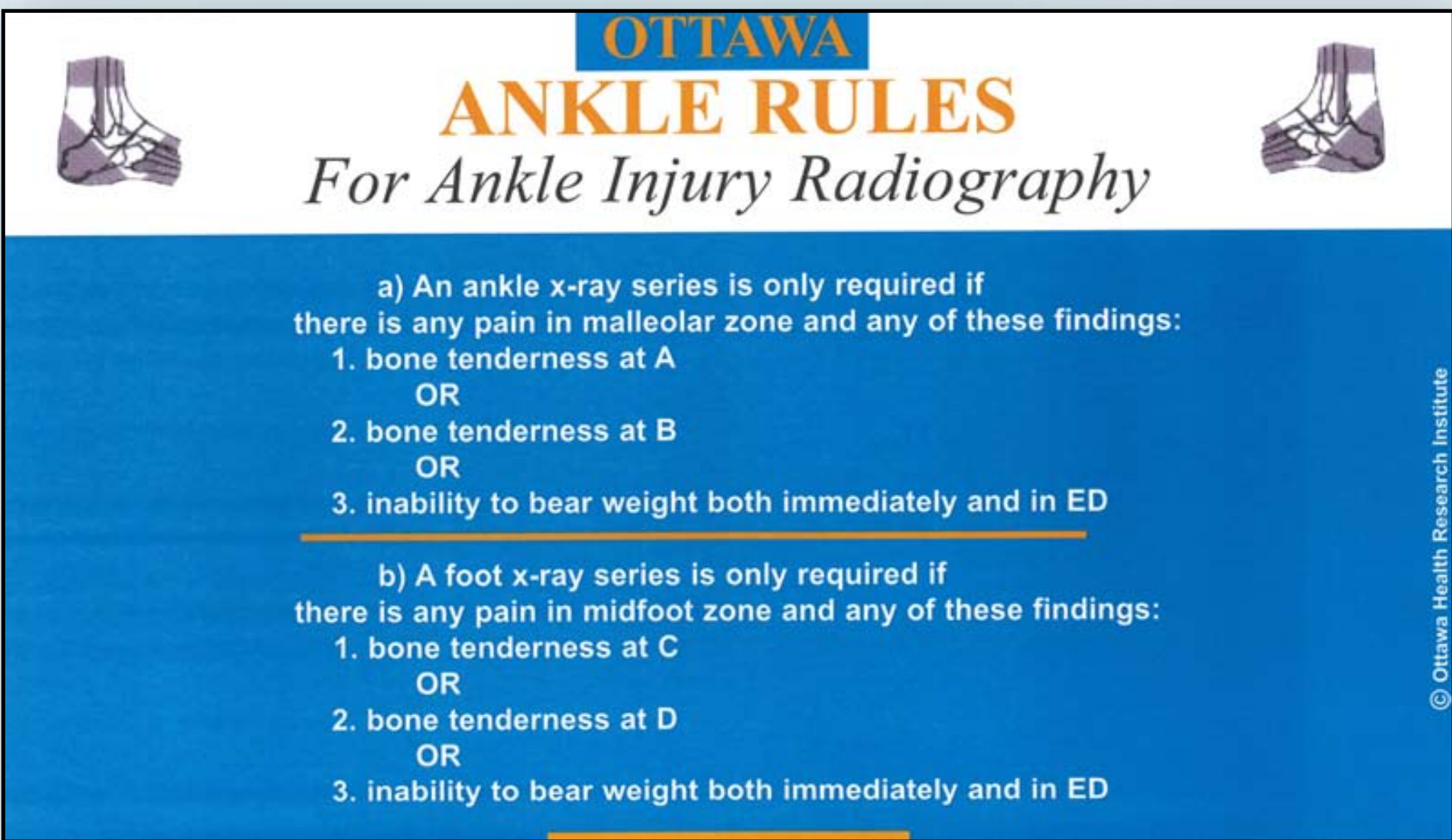
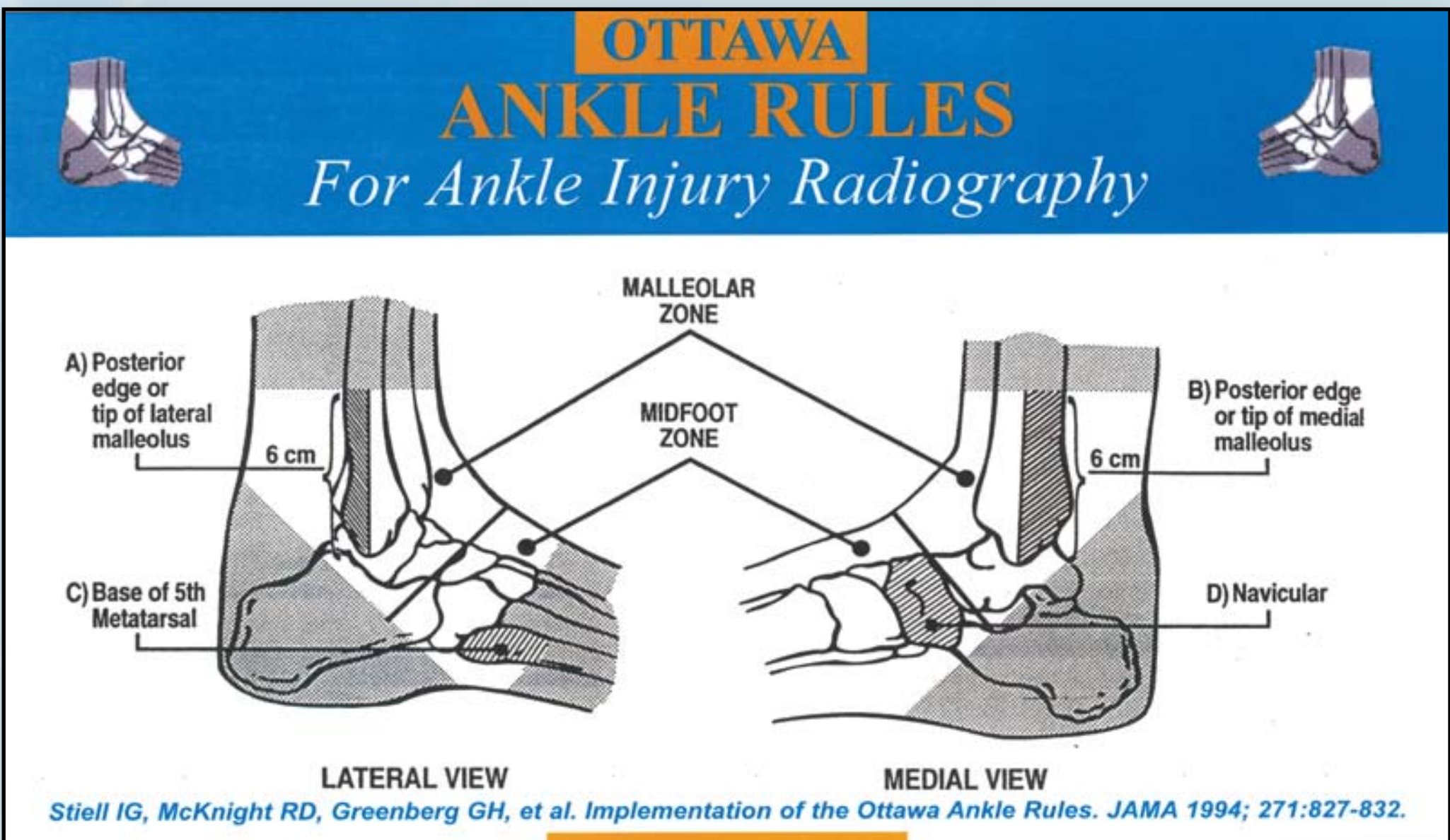
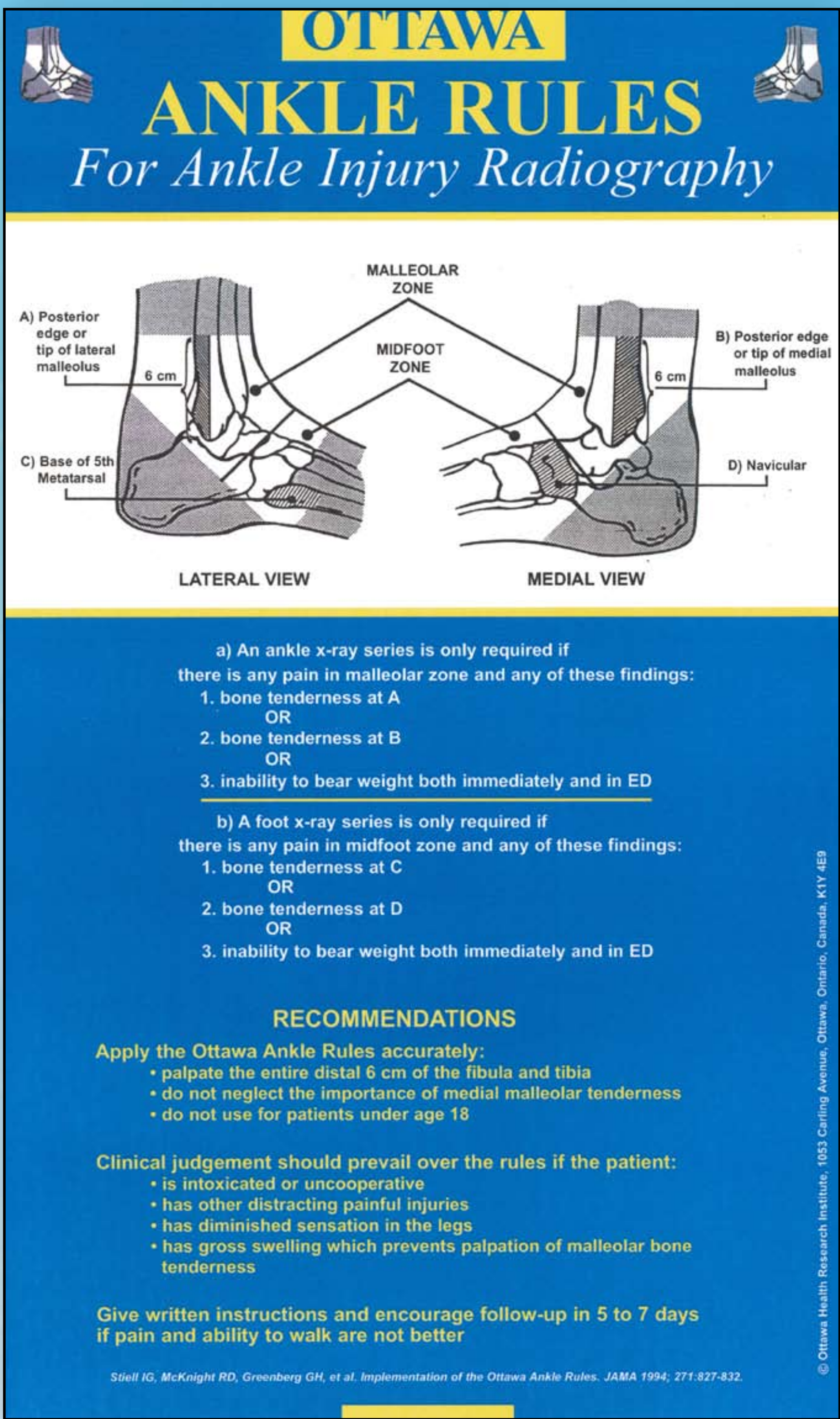


Study Objectives:

We set out to assess baseline OFAR use before radiographs were ordered. Then, after intervention (OFAR education), we assessed utilization of radiographs and length-of-stay (LOS). Secondly, patient expectations and satisfaction were assessed.

Methods:

A prospective, two-stage, sequential designed pilot study was implemented. Triage nurses and providers performed their usual practice habits for radiograph use in the first arm. They subsequently were educated to appropriately apply the OFAR before radiograph ordering. Subjects who were OFAR positive at triage had radiographs ordered by nursing staff. Those who were OFAR negative at triage were assessed by the provider and had the OFAR applied again. Radiographs were ordered at the discretion of the provider. LOS for patients enrolled was monitored, and subjects and providers were surveyed regarding their expectations and satisfaction.



Funding:

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Table 1. Patient Demographics Before and After Application of the Ottawa Foot and Ankle Rules at Triage			
	Control	OFAR	Overall
AGE (years)			
N	30	30	60
Mean +/- SD	36.5+/-17.87	36.4+/-15.48	36.5+/-16.58
Median	33.5	38.5	36.5
Range	16-85	16-70	16-85
GENDER			
Male [n (%)]	12 (40.0)	11 (36.7)	23 (38.3)
Female [n (%)]	18 (60.0)	19 (63.3)	37 (61.7)

Table 2. Median Length of Stay in Minutes Before and After Application of the Ottawa Foot and Ankle Rules at Triage			
Length of Stay	Control	OFAR	P-value
Fracture	137	103	0.112
No Fracture	96	85	0.751
Total	103	96.5	0.297

Results:

Sixty-two patients were consented and enrolled in the study, and two withdrew prematurely (not included in analysis), leaving 30 subjects in each arm. Fifty-eight of the 60 patients were radiographed (97%) and 85% of patients responded that they expected a radiograph. ED LOS decreased from 103 minutes to 96.5 minutes (p=0.297) for all patients after OFAR education. There was also a decrease in LOS in patients with a fracture (137 minutes versus 103 minutes [p=0.112]). Patients were equally satisfied amongst the groups (90%) (with no difference between arms) and 95% of providers felt subjects were satisfied with their treatment.

Conclusion:

There was no statistical evidence that application of the OFAR results in a decrease in the number of X-rays ordered or decreased LOS. This suggests that even when providers are being observed and instructed to use decision rules, their evaluation bias tends toward assessments that result in testing. Public campaigns to ensure the correct tests are ordered may have to emphasize the necessary conversations between provider and patient that change patient expectations.

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