

Decision Rules are for Wimps; I Don't Need No Stinking Decision Rule!

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Has that thought ever crossed your mind? Well, honestly, I hope it has. Why? Because we've trained most of our lives to learn to be great doctors and diagnosticians. If all we needed were a few rules or a phone with an app or seven, then why did we waste so much time in the prime of our lives studying and reading and learning how to think?

So are decision rules an affront to our chosen career? Are they an attempt by the "man," the hospital administrator, the contract management group, the Illuminati, or maybe even by the ACA to eliminate us over-qualified and over-paid doctors? Or are they tools to assist us in our practice?

Maybe we should examine a select few to find out. Let's start with our friends from the north.

Ottawa Ankle Rule

Mr. Smith is an 85 y/o male with dementia, CHF, CAD, COPD, PVD, diabetes, and renal insufficiency who twisted his ankle after slipping on some water at his house. He does not remember the exact mechanism of injury or how his foot turned. He reports pain, swelling, and bruising to the lateral aspect of his ankle and has no other complaints. He tried to "walk it off" but the swelling has worsened. On exam he has edema and ecchymosis near the lateral malleolus without tenderness. He has a slightly unsteady gait, but can bear weight.

Does Mr. Smith need an X-ray? The Ottawa Ankle Rule states that an X-ray is indicated if the patient has pain in the malleolar zone AND one of the following: tenderness at the medial malleolus; tenderness at the lateral malleolus; inability to bear weight immediately after the incident or while in the ED.

According to the rule he does not require imaging. So how comfortable do you feel with that? Depending on the review, the rules are 96-100% sensitive for a fracture.¹ That's pretty darn good, so you should feel fine discharging him home with an ACE wrap. Except of course, those studies didn't all show 100% sensitivity. So do you break the rule and order what any bean counter would certainly label as an unnecessary X-ray? I would, and it's not because I disagree with any of the data, findings, or conclusions about the Ottawa Ankle Rule. It's because the rules were developed to treat a population. While, in general, we do treat populations, we also must be cognizant of the strength and weaknesses of studies and the rules derived from them. If the population studied exactly mirrors our own patient population, then we're good to go. But no study population exactly mirrors our own patient population. So, do we ignore the rules? Nope. We use the rules as a guide for treating an individual patient from our larger population.

If Mr. Smith was actually a 25 y/o male with no medical problems, would you still break the rule? I'd suggest not. Let's look at another rule.

PERC (Pulmonary Embolism Rule-out Criteria)

Mrs. Thomas is a 45 y/o female with palpitations, chest pain, and dyspnea. The symptoms started about two hours ago while visiting her husband who is in the MICU. She has hypertension but no other PMH. Specifically, she denies estrogen use, previous DVT or PE, and recent hospitalizations or surgeries. She denies hemoptysis. Her temperature, blood pressure, and respiratory rate are all well within normal limits, her pulse is 75, and her oxygen saturation is 98% on room air. Her physical exam is completely normal.

Should Mrs. Thomas be worked up for a PE? According to the PERC criteria (Age <50, HR <100, O₂ Sat ≥95, no hemoptysis, no estrogen use, no prior DVT or PE, no unilateral leg swelling, and no surgery or trauma requiring hospitalizing in the past four weeks) she can be "ruled out" for a PE and does not need further work up. Does that sound good to you? It sounds good to me. In a large prospective study, patients who met all PERC criteria had <1% chance of having or developing a PE within 45 days.² That seems to me about as good a guide as we will likely get. But ... I skipped over one key part of the study, the population. To which patients should we apply PERC? According to the study, only to patients with a low clinical suspicion for PE, which is likely true of Mrs. Thomas.

So, PERC is a rule which we apply after making a clinical decision. Or, in other words: once we use our extensive medical knowledge and training to determine if our patient fits the population to which the rule is meant to apply, only then may we use the rule to determine care.

Rules are useful tools that we should use when appropriate. Rules do not insult our intelligence or diminish the value of our training. Automaton with rules will not replace doctors (at least for a little while). Ignoring rules is like a carpenter building a cabinet without a hammer. But using a rule without proper training and knowledge is like that same carpenter using the hammer to pound in a screw. It might work most of the time, but the results won't be pretty.

References:

1. Bachmann LM et al. Accuracy of Ottawa ankle rules to exclude fractures of the ankle and mid-foot: systematic review. *BMJ*. 2003 Feb 22;326(7386):417.
2. Kline JA et al. Prospective multicenter evaluation of the pulmonary embolism rule-out criteria. *J Thromb Haemost*. 2008 May;6(5):772-80.