



BY JARROD SHAPIRO, DPM

Keep an Open Mind to Avoid Confirmation Bias

Beware of tunnel vision.

Practice Perfect is a continuing every-issue column in which Dr. Shapiro offers his unique personal perspective on the ins and outs of running a podiatric practice.

Have you ever heard the phrase, “When you’re a hammer, you see everything as nails”? This common statement is an admonition to physicians to keep an open mind and not become myopic in their thought processes. Unfortunately, we often see this type of closed-mindedness.

Years ago, a nurse sought advice from a local vascular surgeon regarding her painful first metatarsophalangeal joint. The vascular surgeon ordered a bone scan and saw increased tracer uptake at the first metatarsal head. Thinking the patient had osteomyelitis, the doctor recommended amputating the great toe and part of the metatarsal (a partial 1st ray amputation). The patient presented for a second opinion.

Her history and physical examination did not look anything like a bone infection. She had no ulcer history (she wasn’t even diabetic for that matter) and her examination demonstrated normal skin, no erythema or edema, and limited joint range of motion of the 1st MTP joint. On radiographs, she had a simple dorsal 1st metatarsal spur and some mild joint space narrowing.

Yes, friends; you guessed it: she had mild hallux limitus. And, yes, another doctor almost amputated it. She was treated with a simple cheilectomy.

Biopsy and cultures of the bone during the procedure showed no evidence of bone infection. The patient recovered after surgery without issues.

The vascular surgeon made an almost disastrous error in thinking. This doctor was so used to treating patients with infections that he misread the bone scan, which is highly non-specific in the first place. When he looked for infection, he found it—although “it”

as one example. Two people on opposite political spectrums can observe the same event in completely divergent ways, re-affirming their own beliefs.

In podiatry, a common confirmation error of which we are guilty is the diagnosis of non-mechanical heel pain as mechanical in origin. How nice would it be if all of our heel pain patients suffered from plantar fasciitis? This is a common error made by podiatrists.

We often see patients with heel pain as a second opinion, hear a story that sounds atypical, and determine that it’s a neurological issue such as spinal radiculopathy or Baxter’s neuritis. Just like anyone else, podiatrists are prey to confirmation bias.

So, when the stakes are high how do we prevent ourselves from suffering confirmation bias errors?

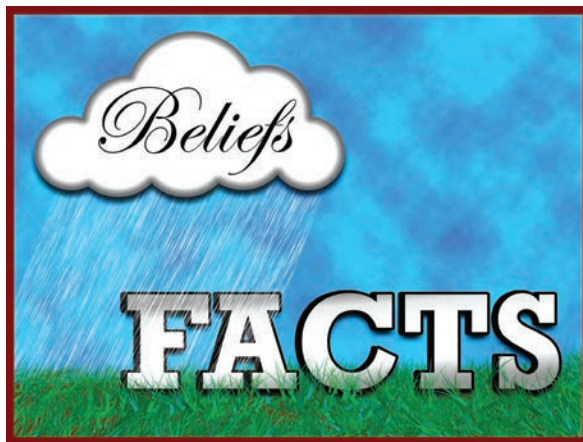
1) Maintain an open mind. Sounds easy, right? It’s not. Be intellectually honest enough with yourself to realize you may be wrong. Being open to the possibilities is the first step to success.

2) Utilize reflective thinking. After coming up with a diagnosis, take a pause. Think about other possibilities. In highly complex situations, write a list of differential diagnoses and rank them by likelihood.

3) Ask yourself, “Does the diagnosis fully fit the clinical scenario?” If a certain detail seems out of place and doesn’t accord with your diagnosis, it might be an indication of an incorrect diagnosis. The details should fit the picture.

4) Consider a dis-confirmatory

Continued on page 34



wasn’t what it actually was. The doctor was a hammer (someone seeing infections a lot) and saw the inflammation on the bone scan as infection (the nail). He failed to realize that increased bone scan uptake could represent something other than infection.

This physician suffered from a highly common error all of us make called confirmation bias. This logical fallacy is one of the most prevalent flaws from which modern people suffer. Confirmation bias is a tendency to interpret new evidence in a way that “confirms” previously held beliefs. This error is incredibly common in human society. Just look at politics

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Open Mind (from page 33)

pathway. Force yourself to be the devil’s advocate and work out if your diagnosis could be wrong. You will then be forced to see your conclusion from a new perspective.

5) Phone a friend. Discuss your thoughts with a trusted colleague (especially one who falls on the skeptical side of the spectrum). An alternate opinion with a fresh perspective is often very helpful.

6) Phone lots of friends. In situations that are more problematic or of higher stakes, speaking with a group is often highly effective.

Consider how this story would have gone if the physician had instead taken a moment to stop and think in a way that fought his confirmation bias. He would have realized that without an ulcer or opening of some type, it was incredibly unlikely that the patient had an infection (hematogenous spread bone infections are vanishingly rare). He would have also recalled that three-phase bone scans are non-specific tests that show anything that is inflammatory—such as common arthritis in the great toe joint, one of the most common joints in the body to acquire osteoarthritis. Things could have been much different for the patient.

Being conscious of confirmation bias provides each of us with a special “perspectoscope” through which we may see the world more clearly. If we use our perspectoscope appropriately, we won’t fall into the hammer/nail error. Keep your mind open and watchful for confirmation bias. **PM**

Dr. Shapiro is editor of PRESENT Practice Perfect. He joined the faculty of Western University of Health Sciences, College of Podiatric Medicine, Pomona, CA in 2010.