care organization. "A journal sometimes has to speak truth to power and that's going to be uncomfortable."

One of an editor's most critical skills, if a medical journal is to be successful, is the ability to identify and nurture talent. "Any journal that can't be better than its editor is doomed," says Smith. "The way to make a good journal is to find good people and give them space to do interesting things."

In the United Kingdom, medical journals tend to pick editors from within their ranks, or people who at least have experience working for a scientific journal. By contrast, journals in the United States have a tradition of awarding the top job to distinguished academics, says Smith. One European medical journal, Smith recalls, had a joint editorship model: one editor with a journal background to handle day-to-day operations, another with impressive academic credentials to set strategic directions. The model has also been successfully adopted by several specialty journals.

This is similar to the co-CEO model in the business world, which has been used by companies such as financial giants Charles Schwab and Citigroup, and also technology leaders Motorola and Research In Motion. "The co-CEO model can work in a culture where cooperation and consensus are highly valued, and where command and control is not," Joshua Greenbaum, an industry analyst and head of California-based Enterprise Applications Consulting, writes in an email.

Still, corporate co-leadership remains somewhat of an enigma, working well under some circumstances and not so well under others, says Steven Dennis, Aarestad Chair of Banking in the College of Business & Public Administration at the University of North Dakota.

> "Any journal that can't be better than its editor is doomed." — Dr. Richard Smith, former *BMJ* editor-in-chief.

"Co-CEOs that arise from co-founders seem to work very well and sometimes last for decades. Research in Motion, a Canadian company, has performed very well with co-CEOs," Dennis, the lead author of a paper exploring the co-CEO model (*J Bus Econ Stud* 2009;15:1-25), writes in an email. "Other co-CEO arrangements arise from mergers and acquisitions, and those tend not to last very long. Still other co-CEO arrangements arise from 'passing the torch' to two siblings, and the success of those relationships is sketchy at best."

Wherever hopeful editor-in-chief candidates spend the majority of their careers, it is important that they have a traceable — and successful — track record, says Dr. George Lundberg, editor-in-chief of the *Journal of the American Medical Association* from 1982 to 1999. "The person should have name recognition in the medical community. It shouldn't be some dark horse who shows up unknown."

There are many other critically important characteristics that a person should possess to be considered for a position running a major international medical journal, says Lundberg, now editor-in-chief of *Cancer Commons*, which promotes using open science to help cancer patients tailor care to their needs (http://cancercommons.org). These characteristics include high intellect, broad medical knowledge, high ethical standards, sensitivity of the needs of journal staff, strategic planning skills, comfort with technology, a gift for public relations and a commitment to improving public health.

"Once an editor is chosen who has all these characteristics, this person must be willing to learn how to be an editor. They must be cautious and modest about their capacity to be successful on day one, and be willing to learn on the job," says Lundberg.

"It's a very complicated job, encompassing the whole field of medicine, as well as public health, ethics and also business, because money has to come from somewhere," adds Lundberg. "It is almost impossible to find someone who excels in all these areas. You find someone who has these qualities and excels in as many areas as possible." — Roger Collier, *CMAJ*

***CMAJ* 2011. DOI:10.1503/cmaj.109-3785**

Orthotics work in mysterious ways

Most drivers don't think much about spark plugs and carburetors. They just want their vehicles to run, leaving the details to their mechanics. Most homeowners trust electricians to worry about voltages and alternating currents. They just want their lights to come on. In the same way, most patients who use medical devices just want the devices to work. Knowing how they work is the domain of clinicians and researchers. Unless, that is, the medical device is a foot orthotic.

According to Benno Nigg, professor of biomechanics and codirector of the Human Performance Laboratory at the University of Calgary in Alberta, even medical experts aren't sure exactly how orthotics relieve pain or prevent injury. "Orthotics can work and can have fantastic effects, but we don't know how they work," says Nigg.

The growing orthotics market could reach annual sales of US$4.7 billion by 2015, according to Global Industry Analysts, Inc. (www.sfgate.com/cgi-bin/article.cgi?f=/g/a/2011/01/13/prweb8061575.DTL). Orthotic devices are used by the public primarily to relieve pain, and by athletes to prevent injury. It is also a diverse business, including everything from custom products made from high-tech materials to inexpensive insoles.

Though prescribed in large numbers by podiatrists and orthotists, clinicians still struggle to determine which type of orthotic will work for a particular patient. In his new book, *Biomechanics of Sport Shoes*, Nigg describes sending a long-distance runner to five orthotics makers to seek help correcting a problem with pronation. Each made a very different type of insert, varying in thickness, hardness and other ways.

"What this means is that specialists come to completely different conclusions on what to do," says Nigg. "It also shows that we don't really understand what we do."

One hypothesis is that orthotics correct skeletal alignment problems, though Nigg says there is no evidence to support that proposition. Rather than moving bones around, it is more likely that orthotics affect muscle activity, he says. Figuring out how they affect muscle activity — and how to correct activity that is causing pain or injury — could lead to more consistent prescribing of orthotics.

"Maybe we should not think of pushing the skeleton around, but rather about finding ways to give signals to the body to do the right thing," says Nigg.

Dr. Michael Nirenberg, a podiatrist in Crown Point, Indiana, says he is not surprised by the lack of consensus on how orthotics work. "There isn't even a consensus on what an orthotic is," he says, noting that the term is used to describe both pricey custom-made inserts and cheap insoles available at any drugstore.

Determining which orthotic will work best for a patient is difficult, says Nirenberg, because so many factors come into play. Even if two patients are similar in many ways — weight, gait, foot structure — they may still experience very different outcomes after using similar orthotics. "You can't guarantee anything is going to work for everyone, because people are so variable," he says. "Orthotics can do amazing things for many people, but not for everyone."

The basic function of an orthotic is to put the foot into a better position, which alleviates pain, says Nirenberg. If a muscle is strained or hurting, a properly chosen orthotic will do some of the muscle's work for it, thereby reducing its workload and bringing relief. Of course, giving muscles a permanent vacation also has a down side.

Chronic foot pain commonly results in treatment using an orthotic, which is believed to put the foot in a better position and thus alleviate pain.

"When you brace the foot, that may alter the function of the foot for the better, but in doing so it negates the need for many of the muscles in the foot to do anything," says Nirenberg. "Common sense tells us that if you don't use a muscle, it's going to weaken."

When visited by a patient in pain, Gordon Ruder, a practising orthotist and the coordinator of the prosthetic and orthotic programs at George Brown College in Toronto, Ontario, won't prescribe orthotics right away. First, he will recommend such things as better shoes, strength training, stress reduction or lifestyle changes that could alleviate the problem. Sometimes, however, these things aren't enough.

"You might have chronic pain that can't be managed by other means, and you still need to work 12-hour shifts, and you can't change jobs to one that will stop you from spending time on your feet," says Ruder.

In such cases, Ruder will recommend orthotics, though, like others in his field, he warns that picking the right type for a patient is not an exact science. "It's not as simple as replacing brake pads on a car after they've worn out," he says. "The human body doesn't work like that."

As a researcher, he would like to see more resources put into studying orthotics. Existing research has been lacklustre, mainly because it is difficult to quantify the biomechanical changes that result from wearing orthotics. There is a need for more-sensitive tools that are capable of detecting these subtle changes, says Ruder. "I very much want to see research become a bigger part of what we do." — Roger Collier, *CMAJ*

***CMAJ* 2011. DOI:10.1503/cmaj.109-3802**