Studies show that about 20 percent of the diagnostic imaging tests conducted contribute no useful information about patients’ conditions. Various radiology associations offer guidelines to family doctors which software developers are now starting to use to develop decision support systems. But there are human, system development and political considerations to contend with in Canada before these decision support systems become attractive to doctors.

Toronto-based MedCurrent is a software company that will be implementing its decision support system at a downtown Toronto hospital in the near future.

“What we’ve created is a system that helps guide doctors who require medical resources of any sort,” says the company’s president, Dr. Steve Herman (pictured), who is a radiologist. “It’s actually a medical rules engine that we’ve loaded with radiology knowledge. But it could work for anything – pulmonary function testing, gastroscopies and so on.”

MedCurrent has loaded radiology testing rules for its OrderRight product initially because it’s on the radar screen for government and other stakeholders. “It’s the fastest growing segment of healthcare – more so than pharmaceuticals,” says Herman.

OrderRight incorporates the guidelines recently released by the Canadian Association of Radiologists (CAR) as well as American and British guidelines. “We load whatever rules are appropriate for the jurisdiction. And our system allows authorized users to modify the rules and tailor them to their preferences. These guidelines are recommendations, and not absolute.”

These rules are housed in a repository in the Internet cloud, and users can access the system with any Web browser. But Herman hopes to incorporate the system in computerized physician order entry (CPOE) systems in the future. “Ideally, OrderRight will be embedded in CPOEs, which are now popping up everywhere. Right now, these systems allow doctors to order anything they want, but there’s no guidance in them. We’re also looking at EMRs – vendors such as Cerner are starting to integrate them. OrderRight could be integrated with any CPOE or EMR system that lets doctors place orders electronically.”

But there are issues around EMRs, so MedCurrent is targeting American insurance companies and large healthcare institutions initially, as these are motivated to cut costs for services that don’t help patients. “We’re going after people who have a hard return in their investment in IT. In government-funded jurisdictions like Ontario, ideally it would be the Ministry of Health that should be wanting a system like this to reduce utilization and wait times – but it takes a long time to make those sales.”

MedCurrent isn’t targeting doctors directly, as they’re unlikely to be interest-
“Doctors’ offices have no reason to buy systems like these, although they’ll end up as users. Right now, if they want to order a CT scan, they can scribble on a piece of paper and give it to the patient. OrderRight is an extra burden because the doctor needs to answer a few questions and it takes more time.”

CAR should be lobbying provincial ministries to look at diagnostic imaging decision support systems to support their guidelines, and to talk about the reasons referring physicians may be resistant to the process. “CAR’s guidelines are essentially out there on paper, but it’s too tedious for busy doctors to grab a book or go online. But if we made it easy to figure out the best test by making the guidelines an integral step in a system’s process, that’s the simplest way to do it,” says Herman.

CAR has in fact been working since 2006 with Medicalis Corp, a Waterloo-based CPOE developer to incorporate its guidelines, and other software companies, says Dr. Martin Reed, chair of the CAR Guidelines Working Group and a member of the Appropriateness Criteria Committee of the American College of Radiology.

“It’s a very complicated task to incorporate the guidelines in a CPOE that works with EMRs and EHRs to make an effective system. CAR itself is not undertaking this, but is working with Medicalis and exploring other companies. Medicalis has piloted the system at the pediatric department of a children’s hospital, and a couple of clinics,” says Reed.

Reed agrees with Herman’s views about governments being the best target. “We don’t think it’s likely physicians will buy this stuff themselves, so we’re working with governments to try to persuade them of the value of funding these systems. Health Canada is funding two such projects, there’s a third underway in Nova Scotia, and a couple of other provinces have expressed interest.”

Despite all the media coverage of the millions wasted on diagnostic tests that aren’t useful, Reed believes it’s still somewhat of a hard sell to governments. “There are huge demands on their dollars. Systems like these haven’t been proven yet in practice. Some will be willing to go ahead, while others will hold back until they know for sure this will make diagnostic imaging used more appropriately.”

There are also system development issues, as integrating decision support systems with EMRs will be tricky. One issue is the human factor. “What’s difficult is integrating the guidelines into the CPOE in such a way that it doesn’t make the doctor do more work to order a test, but provides enough information for the system to decide which guideline is appropriate.”

Another complicating factor is that it requires an intelligent computer system. “Right now, the doctor enters clinical information that the system uses to decide which guideline is appropriate. This logic must be done well, and systems have to be set up to effectively analyze input and provide meaningful output.”

Reed believes it will take five years or more before these types of decision support systems will be integrated and available in EMRs. “I believe it’s possible to do this with contemporary technology, but there’s a cost to it.”

This cost has to be weighed against the cost of waste. Solving healthcare funding is one of the most pressing problems facing society, and many governments are not going about it in the most efficient way, says Herman.

“Cash-strapped governments may say, we’ll limit the number of MRI machines and only put 10 in place when really 20 are needed. But if governments say instead, we’re not paying for tests that don’t help patients, it’s hard to argue with that logic.”