ONE OF THE TOUGHEST THINGS I DO AS a physician is deal with uncertainty. Doctors are often only as good as their diagnostic tests, and those tests aren’t perfect. Too often we are forced to say, “You might have cancer”—which leads to lots of fear, anxiety and lost sleep. It is also often the beginning of an arduous process of more tests and in some cases surgical procedures. The only way to be absolutely sure about cancer is to examine some of the suspicious cells under a microscope. That means a biopsy. And in the U.S. we perform more than a million breast biopsies a year. The results come back normal 8 times out of 10.

That may be good news for a lot of women, but it may also mean we are performing too many biopsies. For years, doctors have been looking for ways to cut that number down. That is why I was so encouraged by reports of a new technology unveiled last week at a meeting of the Radiological Society of North America.

It is called elasticity imaging and, unlike a biopsy, involves no needles or scalpels. Yet it appears—on the basis of an initial study—to be remarkably good at distinguishing benign lumps from cancerous growths.

For the patient, the test will feel and look no different from a standard ultrasound, in which a probe is used to peer deep into breast tissue and create an image using high-frequency sound waves. It takes two minutes longer to do a second scan and analyze the results with special software. The initial ultrasound finds the lump, according to Dr. Richard Barr, author of the study. The second scan probes the lump’s characteristics, including how much it moves or stretches—which is where the technology gets its name.

For reasons that aren’t yet clear to Barr or anyone else, when the elasticity software is applied, the image of a suspicious lump becomes larger if the lump is cancerous. Conversely, a noncancerous lesion appears smaller in an enhanced image. Additionally, cancerous lesions have a characteristic pattern—a sort of stringy network whereas benign cysts look like a well-defined bull’s-eye.

It all sounds a little vague and subjective, but in Barr’s hands, it seems to work. In a study of 80 women with 123 suspicious lumps in their breasts, elasticity imaging scored remarkably well. Subsequent biopsies showed that it correctly identified 17 out of 17 cancerous lesions and 105 out of 106 benign lesions. (There was one false positive.) Barr is understandably excited about the results. He envisions a day when this kind of technology might be able to eliminate biopsies altogether.

We are not there yet. One thing to consider is that ultrasound tests, unlike CT and MRI scans, are extremely operator dependent; the results could vary widely from facility to facility. Also, your doctor, like most other physicians, would probably want to see more studies of the new test before being comfortable with calling off a biopsy. Barr already has that in the works. He is preparing a multicenter international trial with 2,000 patients that will start in January and take about a year.

In the interim, women should not forget a yearly mammogram starting at age 40. For now, it remains the gold standard of breast-cancer screening.