

Lots of reasons to think twice about cancer screening

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By Dr. Gordon Guyatt

Sandra (not her real name), a colleague of mine at McMaster, noticed a lump in her left breast. A trip to her doctor resulted in a mammogram. The lump Sandra had noticed proved to be a benign cyst, but the mammogram showed an abnormality in the other breast. A biopsy under local anaesthetic revealed suspicious cells, and Sandra had to undergo a lumpectomy under general anaesthesia.

The lumpectomy showed no cancer. The mammogram had proved to be a false positive, meaning that the positive result was a mistake, there was no cancer at all.

A few days after surgery, Sandra noticed a painful swelling in her breast. Her family doctor prescribed antibiotics for an infection. Sandra had a frightening allergic reaction to the antibiotics bad enough that she had difficulty breathing.

When Sandra went to the emergency room to deal with the allergic reaction, the doctor found an abscess that eventually required painful packing of the breast with gauze to help clear the infection. Sandra had to attend a clinic for the packing every day for two months, felt terrible for much of that time, and was only able to work 3 hours per day.

The point of the story? Screening, particularly screening for cancer, is not problem-free. Sandra's story illustrates the most important limitation. No screening test is perfect, and there is a high risk of false positive results. A 50-year old woman who follows recommendations for yearly mammograms has a risk of over 40% of, like Sandra, having a false positive result during the next 10 years. More than 9 out of 10 positive results will turn out, on further investigation, to be false positives. Fortunately, few of those with false positive results will have the disastrous consequences that Sandra experienced. Still, that is a lot of breast biopsies, and a lot of worry and fear. In one study, over 40% of women with false positive mammograms were still feeling frightened of breast cancer three months later. In 17% the fear was still having bad affects on their daily function.

Are the benefits of screening worth all the additional tests and their complications, and the anxiety that results? Many people overestimate the benefits of screening. If 1,000 50-year old women undergo breast cancer screening for a decade, screening will prevent 4 breast cancer deaths. That means we have to screen over 250 women for 10 years to prevent one premature death from breast cancer. The price we pay will be 100 false positive results in those 250 women.

Another way to put it is that if a 50 year-old woman chooses to pass on screening, her likelihood of dying of breast cancer in the next ten years is 13 in 1,000. If she is screened, the likelihood of dying of breast cancer drops to about 9 in 1,000. If she complies with yearly screening, her risk of a false positive is 400 in 1,000.

It's the same story with other cancer screening. Say that, at age 50, 1,000 people start screening for cancer of the bowel by using a test that detects blood in their bowel movements. They continue to test each year for the rest of their lives. The life time screening would cut the number of bowel cancer deaths by 13.

The price will include over 2,000 false positive tests. Each person who chooses to screen can expect to have 2 false positive tests. Each time a test is positive, the patient has to have a colonoscopy. Colonoscopy means an examination of the entire lower bowel with a long tube with a light on the end. Not most peoples' idea of a good time. Those 2,000 colonoscopies will result in 10 major complications. My point is not that we should give up on screening. But I would say that people tend to overestimate the benefits, and underestimate the risks. Screening may not be for everyone.

What all these sobering numbers certainly tell us is that we should avoid screening for cancer until we know for sure that screening will postpone at least a small number of deaths. Sometimes, screening doesn't work at all. The high quality studies of lung cancer screening have, for instance, shown no reduction in lung cancer deaths.

I've been thinking for a while of writing this article pointing out the limitations of screening for cancer. The Ontario government's plan to set up for-profit magnetic resonance imaging (MRI) and computer

tomography (CT) scanning told me this is the right time to get the message out. The government plans to encourage for-profit providers to charge patients for screening MRI and CT scans, so-called yuppie scans, looking for cancer. In this case, there is no evidence that anyone will live any longer as a result of the yuppie scans. Will there be lots of false positive results? For sure. Will doctors need to investigate with invasive tests to check out those false positive results? Of course. Will there be complications such as those Sandra experienced? Naturally. We have a shortage of radiologists and MRI technicians. The government plans to have the scarce supply of radiologists and technicians spending their time on tests with certain harm, and uncertain benefit.

Is this a crazy idea? I'd say so.