

# Mythbusters

A series of essays giving the research evidence  
behind Canadian healthcare debates

*Myth busted June 2006*  
*Revised and Updated August 2006*

## Myth: Early detection is good for everyone

According to some researchers, doctors should also focus screening on people who can benefit the most, provide follow-up treatment, and monitor their patients' compliance with medical recommendations. Finally, they should screen only for conditions that cause serious illness or functional difficulties, *and only when an accurate test and effective treatments are available.*<sup>v</sup>

Of course, no test is 100 percent accurate. If a condition is very rare in the population being screened, the false-positive rate will be high. Even with common conditions, prevalence will still be low enough to lead to many false positives. These false results cause stress and anguish for patients who do not actually have the condition.<sup>vi, vii</sup> A test that provides a false negative result is also problematic, as it can lead to complacency and a false sense of security — for example, a common urine dipstick test to detect diabetes could fail to do so in four of every five patients who have the disease.<sup>vi</sup>

Another problem with many screening tests is “lead-time bias” — the test could discover a disease before the patient feels ill, but it does not actually extend the patient's life. This early detection can artificially inflate survival time by moving up the diagnosis date, making the test appear to be useful even though mortality doesn't in fact change.<sup>viii, ix</sup>

### Exhibit A: The PSA test

Early detection is often an important strategy in the fight against cancer, particularly with cancers that are aggressive and must be found early to improve the patient's odds of survival. However, one of the more widely used tests — to detect prostate cancer, a relatively slow-growing form of cancer — is quite problematic.

The prostate-specific antigen (PSA) test does not detect cancer itself — only a biopsy can do that — but rather levels of a protein produced by the prostate gland which is associated with prostate cancer. The test leads to treatment for many cases of cancer that, if left alone, would never become life-threatening.

Sometimes patients schedule annual visits to health professionals even if they don't have any symptoms, because clinicians might discover something with their specialized knowledge and technologies that enable “early detection” of illness. Doctors and advocacy organizations often encourage this screening of healthy people, in the belief it is good practice.

Unfortunately, many widely used tests are not very accurate, or they find conditions for which there is no effective treatment. At their worst, they leave patients worse off than they were before.

### No clear answers

Evidence-based guidelines suggest that instead of an annual health check-up, for which there is no evidence, doctors should tailor screening to individual patient health profiles and move to “opportunistic” screening — taking the time to talk about prevention and screening when patients come see them for an acute problem.<sup>i-iv</sup>

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Advocates often claim that since the PSA test was introduced, deaths from prostate cancer have dropped, but mortality rates started falling well before the PSA test could have had an effect.<sup>x-xii</sup> The test is not recommended for widespread screening of men without symptoms, largely because of its high false-positive rate. Patients receiving a false-positive result can suffer anxiety, and they could have to undergo painful and unnecessary follow-up treatments that can have severe side effects, such as impotence and incontinence.<sup>x, xi, xiii, xiv</sup>

More importantly, research to date shows that patients with prostate cancer who take the test have no better odds of surviving than patients who don't. This includes a recent study of more than 71,000 men, which found similar mortality among screened patients compared to unscreened patients.<sup>xv</sup> A Canadian study also estimated only 16 percent of tested men with prostate cancer would have their lives extended by treatment. The rest would have died of another cause before the cancer had a chance to become lethal.<sup>xvi</sup>

### Exhibit B: Prenatal diagnosis of genetic abnormalities

Not all early detection strategies are about prevention. In some cases, they can instead provide advance knowledge about a medical condition that already exists. However, sometimes this information can raise a series of difficult or uncomfortable decisions for some patients.

One example is the practice of examining fetuses early in the pregnancy to provide early knowledge about birth defects and other problems. This can be accomplished through many forms of non-invasive testing, including combinations of blood test and ultrasound.

In the case of genetic abnormalities such as Down's syndrome, women considered by health professionals to be of advanced age for childbirth (usually over age 35) are often offered invasive tests such as chorionic villus sampling in the first trimester and amniocentesis in the second trimester.<sup>xvii</sup>

The accuracy of these diagnostic tests is not in question. However, they may often raise a number of difficult decisions for mothers-to-be, including whether or not to terminate the pregnancy. Although many mothers may appreciate this information, for others this early detection may result in increased anxiety and even regret at having consented to the test.<sup>xviii</sup>

### Conclusion

Before any specific test is put into widespread use, patients and practitioners need to consider whether it is worthwhile and accurate, and whether they would be empowered to do something with the results.

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