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## Am I really sick

By **Fran Molloy**

Fields of Interest: Health Medicine

Like most developed countries, Australia faces a growing health crisis as a lifestyle-induced boom in obesity, diabetes and associated illnesses shows no sign of abating.

At the same time, pharmacies and supermarkets now sell an ever-widening range of home-based medical tests. The anxious consumer can pop into their local pharmacy to buy a test-kit that will indicate diabetes, high blood pressure, bowel cancer - even menopause, all without crossing the doctor's threshold.

Self-test kits available at pharmacies generally have some level of credibility, with tests that measure things like blood pressure and blood glucose levels - reliable indicators that general practitioners still test routinely.

But an increasingly bizarre range of tests marketed online are stretching the boundaries of credulity while playing on the fears of a public that has been subjected to dire public health warnings and statistics. Some tests offer to analyse vitamin deficiencies based on hair and nail clippings; others claim to analyse genes or even free radicals from a saliva sample.

Kon Sclavos from the Pharmacy Guild of Australia says that while there has been a growth in home testing in Australia, it pales in comparison with the testing available in the US. "Although the overseas trend is for more home based testing, it's unlikely to increase here the way it has done in countries like the US where pathology services are user-paid, compared to Australia which has highly subsidised pathology services," he explains.

Two industries in Australia stand to benefit from the growth in do-it-yourself diagnostic tests: the medical devices and diagnostics industry, which markets tests, and the pharmaceutical industry, which may see a big increase in preventative drugtaking as a result.

The Australian medical devices industry is worth about \$3 billion, according to its peak body, the Medical Industry Association of Australia. The pharmaceutical industry in Australia is worth an estimated \$7.8 billion and spends about \$500 million annually on research and development, according to pharmaceutical peak body Medicines Australia. Researchers estimate that it now costs over \$1 billion to bring a new medicine on the 12-15 year journey from discovery to market.

And while the home testing market occupies just a fragment of this lucrative market, there is a growing demand which medical and pharmaceutical companies are keen to exploit.

Dr Leslie Yeo heads the Micro and Nanophysics Research Laboratory at Monash University. The team recently discovered a method of separating red blood cells from blood plasma using a tiny electrically-charged probe that is passed over a drop of blood in an 8mm round container. Dr Yeo said this technology could be engineered into chipbased devices for miniaturised portable medical diagnostic kits, about the size of a credit card, which could be used for on-the-spot blood tests.

As the cost of public health care soars, strategies to address preventable disease have been high on the agenda and public health strategies have focused heavily on education. Those with lower levels of education and lower incomes are more likely to be overweight or obese, according to a 2004 report by the Australian Institute of Health and Welfare. And while home testing has the potential to play an important role in the prevention of lifestyle-influenced disease, the cost of private testing may be a deterrent to those who are most likely to be affected.

Many doctors have welcomed home testing as an efficient and effective way for patients to be involved in the management of chronic conditions such as hypertension and diabetes. But screening tests - where a diagnosis is involved - are more controversial.

Dr Bernie Tuch, who is the director of the Diabetes Transplant Unit at Prince of Wales Hospital sees plenty to be positive about in-home diabetes screening.

"We think there are several hundred thousand Australians out there who don't know that they have diabetes," he says.

He believes home screening kits may increase the number of people who are aware they have a problem even though they don't yet have any symptoms. The onset of diabetes can be delayed or even prevented by early changes to diet and exercise routines, he says.

"Implementing strategies to keep your blood sugar levels within the normal range means you can avoid complications such as eye disease, heart disease and kidney failure," Tuch adds.

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A growing market in DIY diagnosis kits is feeding an increasingly health-conscious (or hypochondriac) Western market. Fran Molloy asks if this is good for us.

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But on the flip side, early diagnosis can also mean an early entry to a regime of insulin-controlling drugs - and more profits for pharmaceutical companies. While there are obvious advantages to those with diabetes, this trend will increase the funds spent through the Pharmaceutical Benefits Scheme (PBS) to those with early stages of chronic illness.

The long term impact on the health dollar is unknown.

"As self-diagnostic tests get easier and more readily available, people will probably buy more and more of them," Yeo says.

"It's both good and bad; while we will pick up many medical problems earlier as a result, it might also encourage people to be paranoid about every aspect of their health and over-use the tests."

While basic diabetes screening tests are now readily available, Australia will continue to lag behind the US A in the range of home tests available because home testing would violate existing strict protocols around certain tests.

Some health professionals believe that the existing controls are not strong enough and would like to see further restrictions on some of the tests currently available, such as DN A testing for paternity. Dr Sandra Hacker is on the Australian Health Ethics Committee for the National Health and Medical Research Council and says there are several ethical issues to be dealt with in relation to selfdiagnostic medical tests.

"One issue is cost," she says, explaining that relegating first-stage diagnostic tests to private funding through kits that are bought over the counter will deter low-income earners. She says that another serious issue is the potential damage of discovering a test result in an unsupported environment.

"There are real risks associated with receiving certain test results, such as HIV or paternity DN A testing. That sort of confronting information can be psychologically very damaging. It is much better dealt with within an appropriate consultation with sufficient support from experienced counsellors or other professionals."

Public health officials have already stated in numerous reports that tests such as HIV and Hepatitis C will not be approved for the home market in Australia, despite their availability in the US .

Scott Berry is the acting CEO of the AIDS Council of NSW and says that home HIV testing, which is available over the internet in the USA, should not be approved in Australia, adding that there is a margin for error with home testing kits which is far greater than the HIV testing done by Australian pathologists.

"Australia has a fantastic system for testing, support and surveillance of people with HIV, while the US only tracks the progression to AIDS, so we've been able to stay on top of the epidemic here in a way that the US hasn't," he says.

Dr Julia Lowe, a clinical diabetes specialist and a senior lecturer in the School of Medicine and Population Health at the University of Newcastle, recommends home testing for patients with diabetes, high blood pressure and asthma.

"When people monitor the effects of their everyday life on their health, particularly with chronic conditions like hypertension, diabetes and asthma, they are able to take certain actions straight away to prevent a deterioration in their condition. It reduces the number of emergency admissions."

However, Lowe is wary of home screening tests which involve self-diagnosis because they need to be over-sensitive to ensure they pick up most sufferers, so can often cause anxiety about false results, particularly if confirmation is not sought from a doctor.

"Many tests used for diagnosis may include a whole pile of the worried well who are fearful that they've got something they actually don't have," Lowe says. "Diagnosing yourself is fraught with difficulty because you are lacking a professional interpretation and understanding of what the result really means."

It's not just medical testing kits that encourage self-diagnosis; written tests that encourage psychological self-assessment are widely available - perhaps too widely available, according to pharmacist and author Gail Bell.

Bell, writing in The Quarterly Essay in 2005, lambasted the "depression industry", arguing that drug companies have invested billions to try to simplify a profoundly complex mental condition, and that ordinary problems of living have been transformed into medical conditions.

Since 1990, the number of prescriptions for antidepressants has risen from five million a year to 12 million in a population of just 20 million, Bell says - and many of these drugs, intended for major depression, are prescribed for minor depression and even prescribed for children.

"Consumers have been happy to get on board," she adds. "The vocabulary of depression - 'serotonin', 'bipolar', 'genetic predisposition' - rolls off our tongues as if each of us had studied it at medical school."

But while the debate rages about over-use of diagnostic tools and other over-indulgences of the so-called worried well in developed nations, there are millions of preventable deaths each year in the Third World because of poor diagnostic tools and treatment facilities.

Yeo believes that the growth in home-based diagnostic kits in the West has a positive spin-off for poorer nations.

"That's the noble cause that drives our research," he says. "We're coming up with a really powerful but simple device that could potentially save lives in third world countries."

He says that the commercial reality is that a medical device needs to be profitable if it is to be sustainable in the marketplace.

"But if we create a device that does some crucial medical testing really cheaply then perhaps governments and charities will be able to afford to distribute them widely to people in need."

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### Popular home medical tests

**Bowel cancer test:** 90 per cent of bowel cancers are treatable if detected early, but the majority aren't diagnosed until an advanced stage. A home faecal occult blood test (FOBT) is available in pharmacies and a stool sample sent away for screening.

**Blood glucose monitor:** Many diabetics find this a valuable tool to help self-manage based on responses to food, insulin, activity and stress. Monitoring ranges from several times a week to 5 times a day. One product also tests blood cholesterol

levels.

**Blood pressure monitor:** High blood pressure affects one in seven Australian adults and regular home monitoring can help patients manage their condition. Home monitors retail for around \$150. Some take it further with monitoring programs like My Health Software, an Australian program that stores details of blood pressure levels over time.

**Diabetes test:** A home blood test kit is now sold in Australian supermarkets for about \$15 and indicates whether you are in a range where you should consult a doctor

**Home ultrasound:** Came under the spotlight when actor Tom Cruise bought his own ultrasound machine to check on his unborn baby with girlfriend Katie Holmes. Some US states have since passed legislation to ban home use of ultrasound.

**Menopause test:** "If you have to test for it, you don't have it," one menopausal pharmacy customer remarked. Urine test for follicle stimulating hormone (FSH) indicates if transition to menopause is occurring.

**Paternity test:** Controversial DNA testing can identify parentage of a child based on a hair sample sent in to private laboratories.

**Pregnancy tests:** Introduced in the US in 1978 for home testing 9 days after a missed period. Now tests are accurate as early as 4 days before the next period.

**Street drugs test:** New saliva test kit sold at pharmacies detects marijuana, amphetamines, heroin and cocaine and returns results within seven minutes. Aimed at suspicious parents of teens.

**Thermometer:** Probably the oldest home medical test around. Traditional mercury thermometers now largely replaced by electronic versions.

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