



Issue #001

Friday 4 March 2011 | Published by RCPA

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- Tired All The Time
- They're Our Genes
- Floods and Bugs
- When Continuity Counts

## Interesting Facts

**1 to 14,656**

The ratio of pathologists to the Australian population.

**13**

The minimum number of years it takes to become a pathologist.

**23**

The percentage of practising pathologists across Australia and New Zealand who are over 60 years of age.

## Welcome to ePathWay

**The easy way for you to stay in touch with pathology**

*The Royal College of Pathologists of Australasia has launched ePathWay, a user-friendly monthly online publication. ePathWay has been designed to help busy people like you stay in touch with the important stories and issues around pathology in Australasia.*

*Pathology has an essential role in medicine and good pathology means a good health system. In replacing PathWay Magazine, which the College has published for several years, ePathWay allows you to quickly scan the content to see which stories interest you.*

*We welcome your feedback about the stories covered in ePathWay and hope you find it an invaluable way of being kept up to date about pathology in Australasia.*

## Tired All The Time

## Important Message



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When you break your leg, it's obvious where the problem is and what needs to be done to fix it. But when a person tells the doctor they are tired all the time, the cause is often not clear and may require further investigation.

*"Tiredness is very common and can stem from a vast range of causes which often cannot necessarily be easily determined from a history or physical examination," says Haematologist Dr Ellen Maxwell. "Pathology results provide doctors with a roadmap so they can determine the fastest, straightest route to get to their destination, limiting unnecessary time and investigation to determine the cause of the symptom."*

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## Floods And Bugs: What You Need To Know



The floodwaters have subsided, the clean up is well under way, but there are still some bugs lurking around that can cause problems. Dr Graeme Nimmo, State Director of Microbiology at Pathology Queensland, says pathologists have been hard at work helping GP's diagnose some of the unusual bacteria that were swept in with the water.

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## They're Our Genes: We'll Pry If We Want To

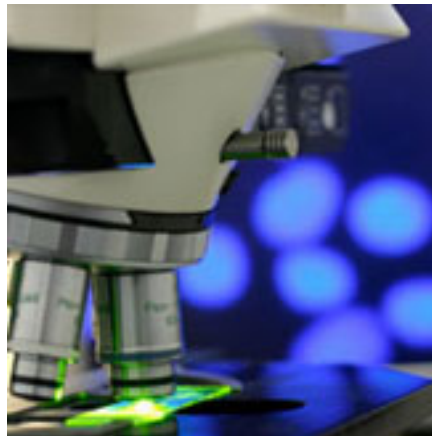
In the early 2000's only a handful of offshore commercial laboratories offered Direct To Consumer (DTC) DNA testing. Today, the number has grown considerably with these labs offering wide-ranging DNA testing services from lifestyle type tests to serious medical conditions. New regulations were passed in Australia in 2010 that excluded DTC DNA testing for serious medical conditions, however, they do not stop anyone from sending their DNA to an overseas laboratory.



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## When Continuity Counts More Than Convenience



There's a wise saying that it takes a village to raise a child. Well, in the medical world, it often takes the collaborate effort of many medical practitioners to look after the sick. That's why the Federal Government's new legislation to allow patients to shop for their own pathologist is ringing alarm bells amongst doctors.

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## RCPA Message



**Pathology gives life's most important answers.**



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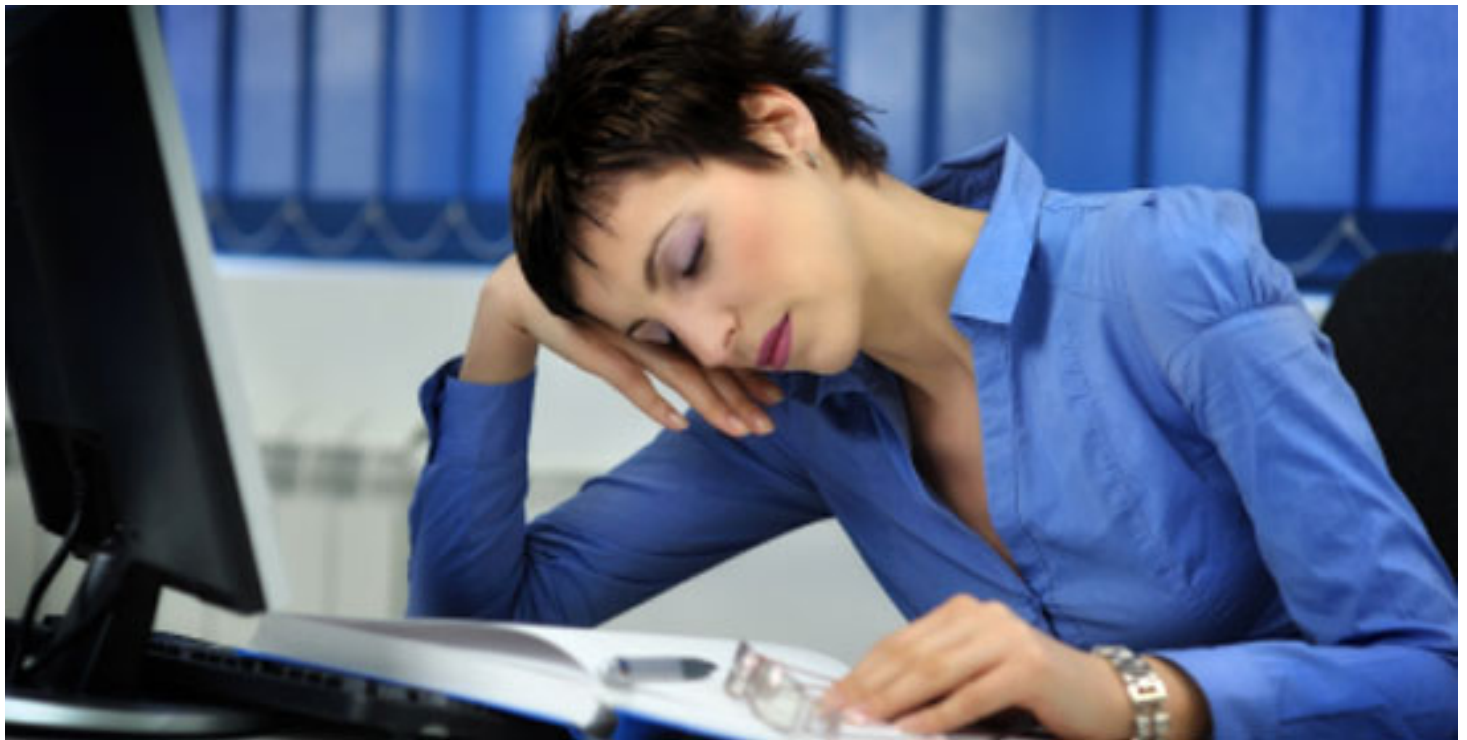
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## Tired All The Time



When you break your leg, it's obvious where the problem is and what needs to be done to fix it. But when a person tells the doctor they are tired all the time, the cause is often not clear and may require further investigation.

"Tiredness is very common and can stem from a vast range of causes which often cannot necessarily be easily determined from a history or physical examination," says Haematologist Dr Ellen Maxwell. "Pathology results provide doctors with a roadmap so they can determine the fastest, straightest route to get to their destination, limiting unnecessary time and investigation to determine the cause of the symptom."

### When Do You Seek Help?

It's no secret our lives are busy and many people feel exhausted at the end of the working week. But how do you know when to seek help for feeling tired all the time?

"Alarm bells should ring where there is no obvious explanation for the tiredness, and the people around you are living the

same sort of life and getting the same amount of sleep but are not tired all the time,” says Maxwell. “Insidious and progressive symptoms are often harder to describe for the patient and to detect for the doctor. When people are tired they may compensate and change their behaviour to cope. People begin to forget what their life was like before they felt tired, even when their productiveness and tolerance decreases. “

Maxwell says increasing tiredness with normal physical activity, such as climbing stairs or vacuuming the house, is concerning.

“There are many people out there with clinical reasons for being tired all the time who don’t seek help,” says Maxwell. “For example, we see lots of young women with iron deficiency from heavy periods and/or pregnancy who think that their degree of blood loss is normal and who would never consider they are iron deficient as a result. But, that’s why they are feeling tired.”

### 3 Common Causes Of Tiredness That Can Be Confirmed With a Pathology Test

#### Anaemia

This is caused by a lack of red blood cells which bring oxygen from your lungs to your tissues. To test for anaemia, a doctor would request a blood test called a Full Blood Count to check the level of red cells in the blood. The results might indicate a problem with either reduced red cell production or increased red cell destruction, and help correctly direct further tests for these possibilities.

#### Iron Deficiency

Low iron stores will eventually cause anaemia but can still cause tiredness before anaemia develops. This is because iron is used in muscle and other metabolic processes. To test for iron deficiency, a doctor would request a blood test to check the level of ferritin in the blood to determine whether iron stores are adequate.

#### Thyroid Disease

The thyroid gland produces hormones that control metabolism. If it is producing too much (hyperthyroidism) or too little (hypothyroidism) of this hormone, then people can feel tired all the time. To test for thyroid disease, a doctor would request a blood test to measure the amount of thyroid-stimulating hormone (TSH) in the bloodstream.

### Twenty-two and Tired All The Time: Sarah’s Story

Sarah was young, fit and actively enjoying university life. When she started to feel tired all the time she put it down to her busy university schedule and active social life, so she made some lifestyle changes. Sarah improved her diet and rested more, but her friends also noticed she avoided taking stairs, couldn’t tolerate even mild exercise and was becoming increasingly irritable.

Sarah finally went to a doctor who after requesting some pathology tests diagnosed anaemia from folate deficiency. This was due to Coeliac Disease, which is an autoimmune disease where the system reacts abnormally to gluten causing small bowel inflammation and damage. Gluten is a protein found in wheat, rye, barley and oats. The doctor was able to confirm Sarah’s diagnosis with blood tests called Coeliac Serology, followed by taking biopsies of her small bowel that were examined by a pathologist under a microscope.

Sarah was soon enjoying her active university life again, but this time she was on a Coeliac diet. And she now knows that being tired all the time was a signal that something was not functioning properly within her body, and its cause needed to be investigated.

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# PathWay

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA



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"Pathologists are busy diagnosing unusual infections that most doctors don't see a lot of, so it is important to take swabs of infected wounds to send to a pathology laboratory to find out what is causing the infection. Blood serology tests can also be helpful in diagnosing some more severe infections," advises Nimmo. "Also, when sewerage treatments plants have failed, as has happened in Brisbane, then people should stay out the water until they have been given the all clear from their local health authority. This includes recreational fishing activities."

### The Flood Bugs

#### Aeromonas sp.

This group of bacteria normally inhabits fresh water, but when floods occur their concentration blooms. The two main

diseases associated with *Aeromonas* sp. are gastroenteritis and wound infections.

### *Vibrio* sp.

Non-cholera *Vibrio* bacteria occur naturally in tropical and temperate coastal marine waters. It enters through the skin when cuts or abrasions are exposed to seawater, or through ingesting contaminated food or water.

### *Leptospira*

*Leptospira* bacteria cause leptospirosis, a disease characterised by fever, headaches, muscle pain, and potentially nausea, vomiting and bloodshot eyes. Humans become infected through contact with water, vegetation or soil contaminated with the urine from infected animals. This can occur by skin contact, especially through abrasions and wounds, or through contact with mucosal surfaces such as the eyes, mouth or nose. Infections through swallowing contaminated food or water is also possible.

### *Burkholderia pseudomallei*

These bacteria live in the soil in tropical areas (North or Central Queensland but also rarely in southern Queensland), and are responsible for the disease melioidosis. Most cases of melioidosis occur during the wet season following heavy rains, or during flooding. The bacteria enter the body when skin abrasions or wounds come into contact with wet soil or water infected with the bacterium. It can occasionally be acquired by breathing in fine droplets of contaminated water, or by swallowing it.

The danger with Melioidosis is that while it can be an acute condition presenting as a type of pneumonia or blood poisoning, other cases might not become apparent for weeks, months or even years after an apparent exposure.

### The Post Flood Checklist

1. Avoid wading in shallow water as it may be contaminated.
2. Clean and disinfect all wounds and keep them covered.
3. Seek medical treatment early if wounds show signs of infection such as redness, pain or swelling.
4. Tank water contaminated by floodwater should be discarded.

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The tests are offered on a commercial basis and require payment by the customer. All you have to do is send them a sample of your DNA and wait for the results. It's now possible to find out your odds of getting everything from arthritis to Parkinson's disease. But what do you do with that information? How do you interpret it? Which results are clinically valid?

"Mixed messages have emerged such as the important one that individuals need to take more responsibility for their health and be proactive, particularly in terms of prevention," says Professor Ronald Trent, Professor of Molecular Genetics at the University of Sydney. "But then we say, you can't take these DNA tests unless a doctor orders them and interprets them. It can be a confusing message, but the bottom line is, be informed about what you are doing."

Dr Graeme Suthers, Chair of the Genetics Advisory Committee at the Royal College of Pathologists of Australasia, echoes this sentiment.

“How do we set up an appropriate level of professional scrutiny without being restrictive about what people can do?” he said. “Transparent information is the key.”

Both Trent and Suthers say the experts sometimes have trouble interpreting genetic tests, so sending results directly to the public can be problematic without professional interpretation. Many tests that are offered DTC are still in their research phase of development, which means the results today may look quite different in the future when more information becomes available.

There is also the issue of genetic counselling which can be an essential part of how DNA test results are viewed, including any follow up that might be required. A small number of DTC laboratories offer this service, but it's over the Internet or by phone. This is a poor substitute for a personal consultation where other factors, such as lifestyle and family history, can be considered and the effect of the information on the person monitored.

“The laboratories cannot say that their tests are meaningful to health as that requires a lot of data that they don't have,” says Suthers. “Then there are the issues of whether the information is not only valid, but helpful. But please don't pretend it's healthcare.”

### Used DNA For Sale?

Professor Ronald Trent cautions anyone using an overseas DTC laboratory to beware of wider issues.

“If something goes wrong there is no practical redress,” he says. “But another issue is, what will they do with your personal information and DNA sample? Drug companies are interested in buying DNA for drug tests, and it is not clear how much information is being shared or sold. This is an issue of concern as you don't have control of these factors outside of Australia.”

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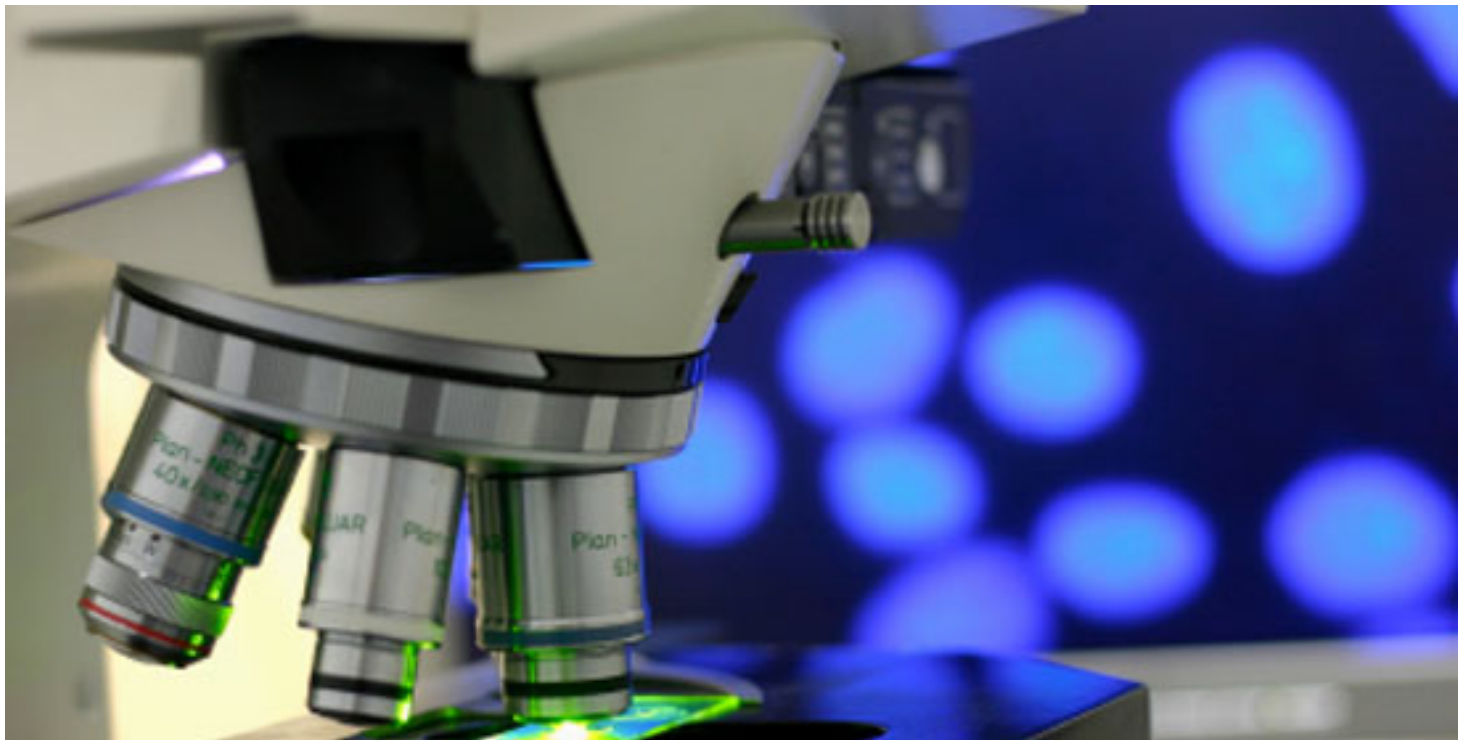
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Like any change, the devil's in the details, and to those not familiar with pathology tests and their interpretation it must look like a great idea. A real vote winner! However, doctors are concerned that patient care and continuity of pathology results will be the losers under this new regime.

"This legislation potentially allows for competition between pathology providers on the basis of cost to the patient," explains Associate Professor Graham Jones, Staff Specialist in Chemical Pathology at St Vincent's Hospital, Sydney. "But there are other issues than price. Most importantly, there is an effect on patient care. For example, there are tests where it is important to go to the same laboratory such as when you are marking the progression of a condition using tumour markers where there can be differences in results from different methods."

Jones says other issues include:

1. Receiving consecutive results that are printed in the same order and format can minimise medical errors
2. Established professional relationships between doctors and pathologists leads to better collaborative patient care.
3. There are many different types of medical practice software, and doctors spend time aligning their system to certain pathology providers to ensure results are easily received and available for interpretation.
4. Laboratories may use different methods and reference ranges for the same tests.

The bottom line, according to Jones, is that ordering and interpreting pathology results is more complicated than 'which laboratory will I go to today?' It should be an informed medical decision as it has consequences for patient care.

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