



PathWay

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA



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Issue #048

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- Colonoscopy could be yesterday's hero
- Unrequested gonorrhoea tests a case of 'all for one and one for all'
- Before you sign, investigate! Is that online test valid?
- Identifying poisons needs real-life super sleuthing skills

Interesting Facts

61,000

The estimated number of Australians affected by Inflammatory Bowel Disease (IBD).

Welcome to the June edition of ePathWay

The way Inflammatory Bowel Disease is diagnosed and monitored could be in line for a rethink thanks to a simple pathology test. Dr Emily Wright gives us her perspective as a gastroenterologist about how and why this test is used.

Test results for chlamydia and gonorrhoea are causing some confusion. We asked one of our experts to explain why they are often reported together, even if only one is requested.

We also reveal how the super sleuthing skills of toxicologists and forensic pathologists can (usually) identify a lethal substance, and provide some tips to help you look past the marketing hype if you are considering an online pathology test.

Make sure you're keeping checking in to our [Facebook](#) page. There's lots of interesting information on it including an interview by 6PR Perth's Peter Bell with our Vice President Dr Michael Harrison about the benefits and disadvantages of using the Internet for self-diagnoses.

You can follow our CEO Dr Debra Graves ([@DebraJGraves](#)) or the College ([@PathologyRCPA](#)) on Twitter to keep up to date with pathology news.

Colonoscopy could be yesterday's hero

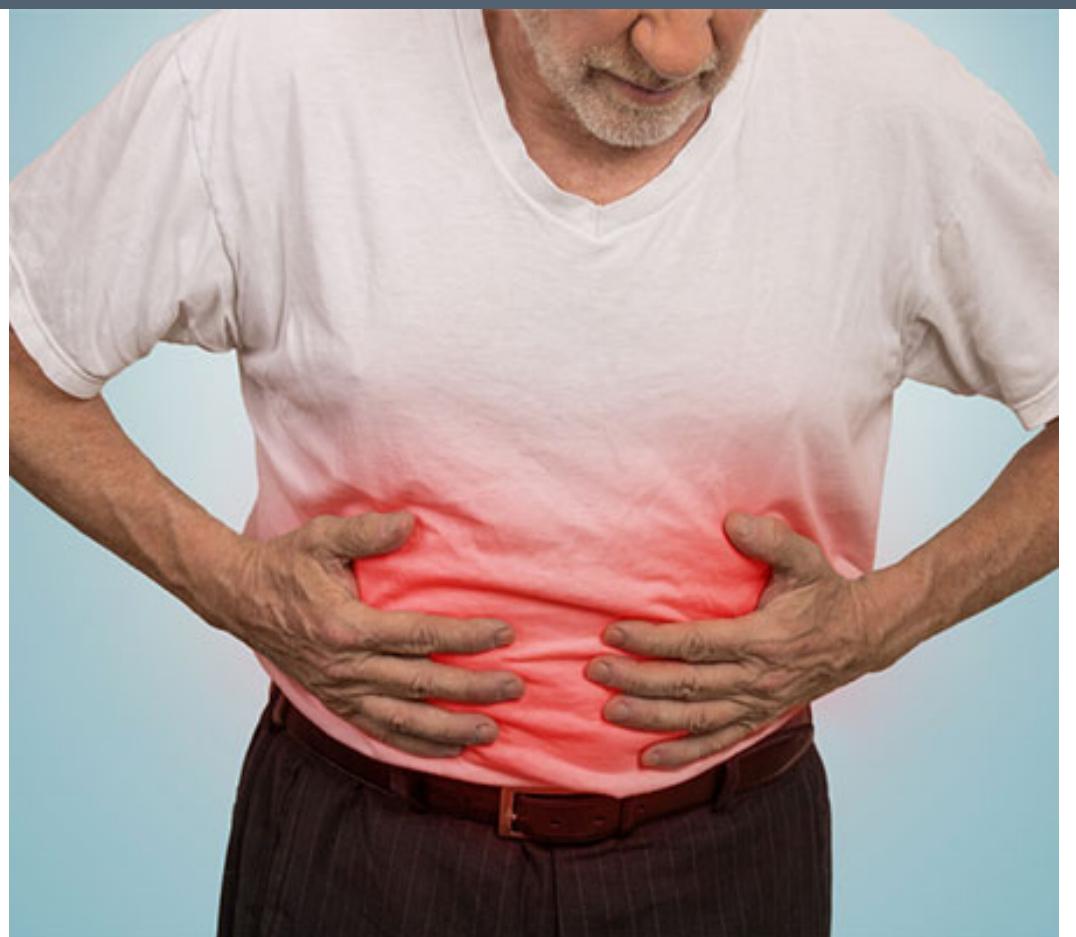
15,000

The estimated number of New Zealanders affected by IBD.

15-40 years

The age range when most cases of IBD appear.

Sources: IBD Support Australia, Ministry of Health (New Zealand)



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Unrequested gonorrhoea tests a case of 'all for one and one for all'

Test results for two of Australia's most common notifiable sexually transmitted infections (STI) are causing some confusion. In a nutshell, if a doctor requests only a chlamydia test, they may receive a result for gonorrhoea as well. We asked one of our experts to explain why.



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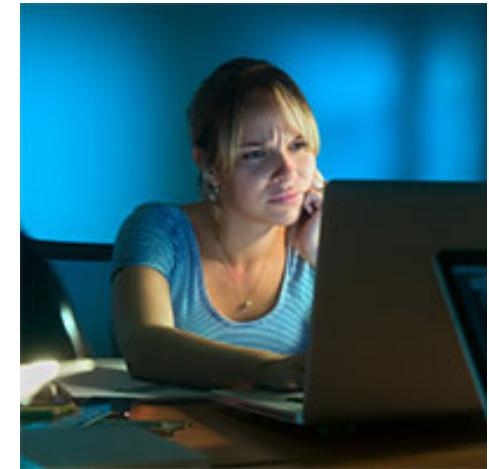
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Before you sign, investigate! Is that online test valid?

There's no doubt the Internet has changed the health care landscape. You can look up anything and sign up to almost anything, including pathology tests. If you are considering an online pathology test, then we've got some tips to help you look past the marketing hype and think of potential risks.



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Identifying poisons needs real-life super sleuthing skills

In the theatrical world where make-believe rules, a person ingests something, dies a dramatic death, and the sleuth investigating the crime identifies the offending poison with ease. It's not so straightforward in real life, but toxicologists and forensic pathologists in labs everywhere can (usually) identify a lethal substance after some detective work.



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Previous Editions

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IN THIS ISSUE

- Community backs HPV vaccine for boys
- RCPA's online manuals receiving thousands of 'hits'
- Five pathology tests to question were chosen wisely by our experts
- Crocs versus bees – which is more deadly?

Welcome to the May edition of ePathWay

The human papillomavirus (HPV) vaccine was initially promoted as a cervical cancer vaccine. It's now offered to boys as well. We asked an expert to explain why in a nod to Men's Health Week.

Lists from medical colleges and societies of tests, treatments and procedures that warrant scrutiny are now live on the Choosing Wisely Australia website. Our College contributed five pathology tests, and we asked our President how these tests were selected.

The recent Food Allergy Awareness Week highlighted the statistic that 1 in 10 babies born in Australia today will have a food allergy. While this statistic is alarming, we looked for a dangerous non-food related allergy and came up with 'killer bees'.

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Colonoscopy could be yesterday's hero



Calprotectin might sound like the perfect casting choice for a western movie, but it's too busy playing a leading role in a different story. This protein is the star of a simple pathology test that helps doctors assess patients with gastrointestinal symptoms and may reduce the need for colonoscopies, saving time, angst and money.

"As a screening test for inflammatory bowel disease Calprotectin can help doctors identify patients who are most likely to benefit from a diagnostic test such as a colonoscopy, and those in whom colonoscopy is likely to be unhelpful," explains Melbourne gastroenterologist Dr Emily Wright.

Calprotectin is found in white blood cells called neutrophils. When the gastrointestinal tract becomes inflamed, these neutrophils move to the affected area and release calprotectin resulting in an increased level of this protein in the person's faeces. It's then a matter of measuring that person's faecal calprotectin by way of a simple stool test to find out if they have an inflammatory process in their gastrointestinal tract.

"Faecal calprotectin is a useful test to assist in the diagnosis of inflammatory bowel diseases including Crohn's disease and ulcerative colitis. In these conditions faecal calprotectin is elevated when the disease is active, as opposed to irritable bowel syndrome when calprotectin is almost always normal," explains Dr Wright.

"It is important to note this test only measures inflammation and is not a replacement for cancer screening tests such as the Faecal Immunochemical Test (FIT)."

Dr Wright says if a patient presents to their GP with gastrointestinal symptoms such as abdominal pain, and there are no alarm symptoms such as weight loss or rectal bleeding, then the GP can request a faecal calprotectin test before they refer the patient to a gastroenterologist and potentially more invasive tests, including a colonoscopy.

"If there is a clinical concern about the possibility of inflammatory bowel disease in a patient with gastrointestinal symptoms such as diarrhoea, abdominal pain or bloating, the patient only needs to collect a sample of their faeces for testing," explains Dr Wright.

"If their faecal calprotectin level is normal, and there are no other alarm symptoms, then their GP can be more than 95 percent sure the patient does not have inflammatory bowel disease. They can then try other therapeutic measures first such as diet and lifestyle changes to assist in symptom control."

Patients with diagnosed inflammatory bowel diseases can also reap the benefits of this simple test. Rather than monitor disease activity with a colonoscopy, their doctor can monitor it based on calprotectin levels instead. They can also use this test to monitor the patient's response to treatment and risk of relapse.

"In established inflammatory bowel disease we can get a benchmark calprotectin level for each patient at diagnosis when their disease is active, and then again when it's in remission. These levels then become markers for that patient's disease activity and can be monitored over time," explains Dr Wright.

"The faecal calprotectin test has only been readily available in Australia for about three years but it's looking very promising as a valuable addition to the testing regime."

There is one drawback for patients at present, although it shouldn't be a showstopper. Dr Wright says the test does not currently attract a government rebate so there is a small out of pocket expense. But compared to the time commitment and invasive nature of a colonoscopy, it seems like a fair trade.

Bowel cancer screen is covered in the [March 2015](#) edition of ePathWay.

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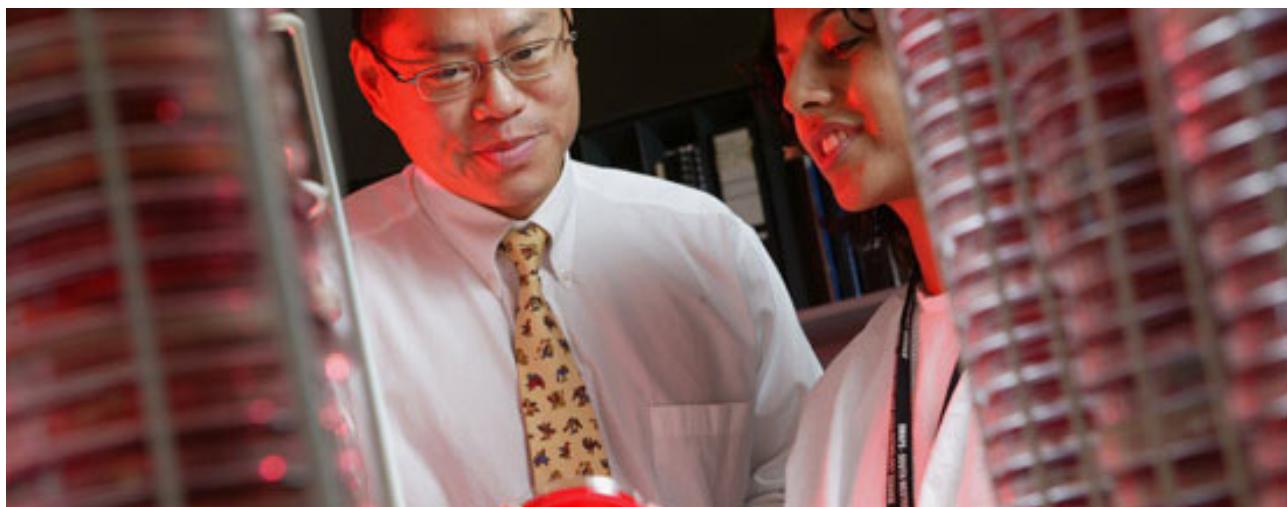
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Unrequested gonorrhoea tests a case of ‘all for one and one for all’



Dr Raymond Chan

Test results for two of Australia's most common notifiable sexually transmitted infections (STI) are causing some confusion. In a nutshell, if a doctor requests only a chlamydia test, they may receive a result for gonorrhoea as well. We asked one of our experts to explain why.

Dr Raymond Chan, spokesperson for the Royal College of Pathologists of Australasia (RCPA), says it's simply a matter of logistics and efficiency.

"Molecular assays called nucleic acid amplification tests (NAATs) are used in almost all laboratories to diagnose these infections. While some laboratories have assays that look for just the one pathogen, many laboratories have the testing configured to look for the two organisms regardless of which one was requested. Chlamydia and gonorrhoea are often found in the same population so it makes sense to bundle them together in the same test for efficiency."

For the same reason, Dr Chan says laboratories may decide to report the results for both organisms (especially if they are positive), even though testing for only one was requested.

"This would certainly be sensible where the test was requested for diagnosis," he explains.

Dr Chan says the dual test has led to concerns when a chlamydia test is requested to screen for this infection, which probably means the patient didn't have any features to suggest an infection was present in the first place.

"Because gonorrhoea is relatively uncommon in a general population compared to perhaps a sexual health service population, then the NAAT result for gonorrhoea is more likely to be a false positive one. This is because predictive values are strongly influenced by the prevalence of disease in the population being tested."

Dr Chan says if the screening test result for gonorrhoea is positive and the person is in a low risk group for this STI, then further information such as sexual history should be sought to assess the probability that the result is a true or false positive result.

"This additional information may increase the pre-test probability and hence the positive predictive value. Doctors should also contact the laboratory and ask if it had confirmed the result using a second target. A positive initial test will increase the pre-test probability of a true result going into the second test," he explains.

"This doesn't completely rule out the chance of a false-positive result in a person with low risk factors, but makes it less likely."

There are also the issues of whether the unrequested test result should be sent at all, and if unrequested gonorrhoea tests are falsely increasing notifications of this STI as reported by a [study](#) recently published in the MJA. They're debates for another forum, but it's reassuring to know there are good reasons why laboratories might test for both STIs, even if only one is requested.

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Professor Sandra O'Toole, Head of Molecular Diagnostic Oncology at the Royal Prince Alfred Hospital in Sydney, is interested in new gene tests and how they can be put into practice in a safe and reliable way.

"The evidence to validate a test has to be strong. That test has to be able to deliver consistent results on the same sample and there has to be a very good reason to do the test. Why do a test to potentially find something that you can't do anything about?" she says.

"Furthermore, many tests that people sign up to through the Internet may not even be tested in an accredited diagnostic laboratory and the findings might not be reliable or even correct."

Prof O'Toole says a test should be performed in an accredited laboratory on the recommendation of a person's doctor so they have confidence it has already gone through rigorous quality assurance

processes, and that it is the right test to do.

Prof O'Toole strongly discourages people from participating in unregulated online testing and emphasises that it is important to talk to a GP or other treating doctor first before doing anything.

"People should think about a number of issues to understand the risks," she says.

These include:

- What are you hoping to find out from the test?
- What will you do if the result is positive?
- What are the implications of the test result? Could it mean you can't get health, income protection or life insurance? Could it affect other members of your family?
- What happens to your personal and genetic information and your sample when they have finished with it?
- Is the testing facility regulated and/or accredited?

"You don't know what an online company offering tests will do with your information. I mean, look at what can happen if you give out your phone number and email address to a loyalty card scheme at the shops. You end up with marketing emails and phone calls. Imagine what can happen if you hand over your DNA and your personal medical information without checking what they will do with them," she explains.

The bottom line is that glossy online brochures or earnest anecdotes from people who have taken the test don't mean the test they are promoting is reliable or even a real test. Prof O'Toole advises people to consult their doctor about the test to protect themselves, their families and their personal information before doing anything.

"It's too important not to do this when you are talking about test results. The result, whether it's real or not, could have a huge impact on you and your family in many different ways."

Quality assurance is covered in the [June 2012](#) and [August 2012](#) editions of ePathWay.

Validity of tests is covered in the [November 2011](#) edition of ePathWay.

Reliable information about pathology tests can be found in the [RCPA Manual](#) and at [Lab Tests Online](#).

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Professor Olaf Drummer, Deputy Director (Academic Programs) at the Victorian Institute of Forensic Medicine in Melbourne, says there are many steps to identifying a victim's poison, and the first one is establishing whether they were poisoned in the first place.

"If a person is found dead then we look for clues about the likely cause of death. It might have been from a medical event such as a heart attack, or it might be from natural causes, or they might have ingested something that caused their death," he explains.

"If an autopsy doesn't find an anatomical cause including dying from a natural cause, then a toxicology screen would be used to determine a possible non-natural cause. If there are no obvious suspicions about what caused the death then we test for the most common drugs of abuse, as well as prescription drugs such as antidepressants, antipsychotics and any analgesics that have the potential to cause

death. If these tests are negative then we dig deeper, but it can be like finding a needle in a haystack."

Digging deeper means looking for more clues. Prof Drummer says if there is a suspicion of product tampering then unusual poisons that could be hidden in the product are investigated. If it's a farmer who died then pesticides they had access to are considered. If there is a drink near the body, then it might be tested to see whether it's contaminated.

"We test for substances using a mass spectrometer to find the compound's molecular fingerprint. We then run this fingerprint through an international library database to see if we can get a match. But it might be a new substance that's not on the database such as a new synthetic drug, in which case it would take longer to identify the substance."

Prof Drummer says if a person was admitted to hospital prior to their death then the hospital records may provide clues in terms of presenting symptoms. But the reality is the scenarios of how a person can die are innumerable, as are the places to find clues.

"The bottom line is we need some type of lead to point us in the right direction of what to test for. It is not possible to test for every drug and poison automatically. While some common poisons are routinely tested, in some cases we need clues to point us in the right direction."

And that, ladies and gentlemen, takes real-life super sleuthing skills!

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