



PathWay

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA



MAY 2013 | Published by RCPA

Issue #025

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Interesting Facts

Nearly
50%

The number of people who thought pathologists were not medically trained doctors as per a recent survey by the RCPA

Introduction

Today (May 28) is the inaugural Pathology Day. To commemorate the occasion the Royal College of Pathologists of Australasia (RCPA) is encouraging the wider public to celebrate the important work of pathology by holding their own Pathology Day events and by wearing something red (there's a new mini iPad up for grabs if you send images of your event to the RCPA!).

Raising awareness of pathology is important because research commissioned by the RCPA has shown that nearly half of all people surveyed don't know pathologists are medically trained doctors! You can read more about the survey results in this edition.

This edition also showcases RCPA initiatives and activities such as the newly minted RCPA Foundation, the journal *Pathology* and the role of pathologists in the proposed changes to the gestational diabetes mellitus testing guidelines.

Pathologists are also central to almost every aspect of medicine – from diagnosing nearly all cancers to being central to the diagnosis of 70% of diseases. The final article on thyroid cancer demonstrates how their skill and knowledge is vital to determining the diagnosis and treatment of this still common cancer.

And don't forget, you can always get the latest news from the RCPA by 'liking' and regularly visiting our Facebook page www.facebook.com/TheRoyalCollegeOfPathologistsOfAustralasia, and by following Dr Graves (@DebraJGraves) or the College (@PathologyRCPA) on Twitter.

Diary Note: The Transfusion Update conference will be held from June 12-14 at the Brisbane Convention Centre. For more information go to: www.transfusion.com.au/iTransfuse/transfusion_update

40%

The number of people who thought pathologists were laboratory technicians

Nearly 70%

The number of people who didn't know that pathologists are responsible for diagnosing diseases and advising on treatment types

Source: RCPA

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College initiatives help to deliver better healthcare



Getting the message out to the wider public about the role of pathology and pathologists is not an easy task - especially when it's such an 'invisible' profession to the public. But within the realms of medicine, pathology and pathologists are central to almost every aspect – from diagnosing nearly all cancers to being central to the diagnosis of 70% of diseases. The Royal College of Pathologists of Australasia (RCPA) is also active in working towards better health outcomes. We caught up with RCPA president Professor Yee Khong to find out what's happening.

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Two behind-the-scenes projects of the Royal College of Pathologists of Australasia (RCPA) are helping to build a solid foundation for the future of research and education. One has been going since 1969, and the other is just over 12 months old, but both underpin quality pathology in Australasia.



We'll talk about the elder of the two first. The then College of Pathologists of Australia decided to produce a quarterly scientific journal in 1967. It was duly named *Pathology*^[1] and the first edition was released in 1969.

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Thyroid cancer is a common disease and its prevalence is rising. The genetic revolution is also uncovering information about possible underlying genetic mutations associated with this cancer, but there's still a lot more to learn. Although most people who develop thyroid cancer have an excellent prognosis, accurate diagnosis is vital — and that depends on the skills of pathologists.



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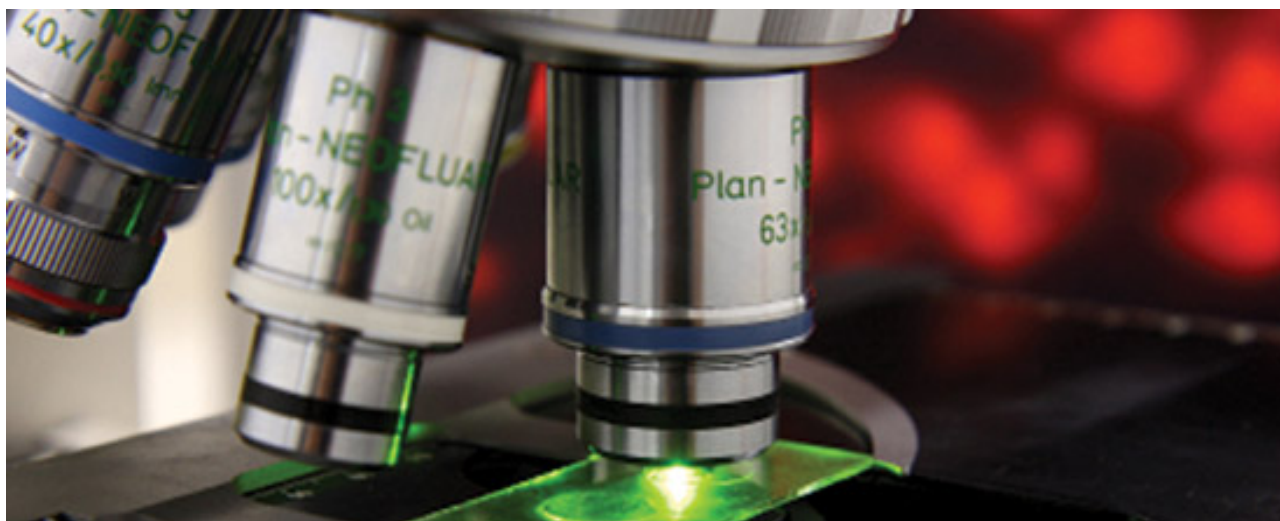
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Getting the message out to the wider public about the role of pathology and pathologists is not an easy task - especially when it's such an 'invisible' profession to the public. But within the realms of medicine, pathology and pathologists are central to almost every aspect – from diagnosing nearly all cancers to being central to the diagnosis of 70% of diseases. The Royal College of Pathologists of Australasia (RCPA) is also active in working towards better health outcomes. We caught up with RCPA president Professor Yee Khong to find out what's happening.

"The RCPA has a number of initiatives happening at the moment. For a start, we've designated May 28 as Pathology Day and we anticipate it will be an annual event," he says. "The focus of the day is to celebrate the achievements of the pathology profession, to pause and be proud of its role in people's health outcomes and to help the rest of the community understand how important pathology is."

Research commissioned by the RCPA has demonstrated a continuing lack of public awareness of the field of pathology. Some of the findings include:

- nearly 50% of respondents think that pathologists are not medically qualified doctors
- 40% think that pathologists are laboratory technicians
- nearly 70% are not aware that pathologists are responsible for diagnosing diseases and advising

on treatment types

- 45% believe there are between 5,000 and 10,000 pathologists working in Australia (when there are just 1,600!)
- 25% think pathologists train for three years or less to become qualified (when it takes at least thirteen years)
- 75% think pathologists train for six years or less
- nearly 50% of respondents think that pathologists are not medically qualified doctors.

Despite this lack of awareness about the role of pathology, the RCPA continues to work towards better health outcomes with initiatives such as a position statement on vitamin D testing^[1].

“This position statement outlines the best evidence on when this test is clinically indicated and when it’s not,” explains Prof Khong. “Vitamin D testing is a contentious issue and there has been a huge increase in the use of this test which probably corresponds to the increasing number of articles published in the medical literature about vitamin D and its link to diseases. But, requesting this test needs to be based on evidence and that’s where the RCPA stepped in.”

The RCPA has also produced a joint statement on International Best Practice in Diagnosis and Management of Cancer in response to the increasing number of cancers now linked to defined genetic mutations which respond to targeted therapy^[2]. This joint statement will be launched today (May 28 - Pathology Day) with all of the International Liaison of Pathology Presidents in attendance.

“Pathologists test for genetic mutations and take their findings to Multidisciplinary Cases Conferences^[3] to inform the treatment for patients,” explains Prof Khong.

Another initiative is a joint Guideline on Pathology Testing in the Emergency Department^[4] with the Australasian College for Emergency Medicine in response to continued growth in both requests for and costs of pathology tests in recent years. This joint initiative produced an evidence-based reference table to assist emergency department clinicians to order appropriate pathology tests for common emergency presentations.

“The College is also looking at anomalies in the Medicare Schedule related to tests on fetuses. Medicare only covers some tests because the fetus is classed as a non-person. We are compiling a list of where this happens to try and find an equitable outcome,” says Prof Khong. “We’re also looking at the issues of different funding models between the states for genetic tests.”

Prof Khong says the basic premise underlying these initiatives, and many others past, present and future, is quality and safety of testing for patients. He says the RCPA looks at the evidence to inform best practices, and also focuses on keeping costs down by not endorsing expensive tests which are of little clinical value or which have little evidence to justify them.

“We want to make sure the right test at the right price is available for the right patient at the right time. To do this we need to produce the evidence and engage in a dialogue with our medical colleagues, the government of the day and the general public to ensure that pathology testing delivers better healthcare.”

The message about the important role of pathologists and pathology also needs to reach the wider public so that they know who is diagnosing and treating their illnesses, and to correctly position pathology as a major priority in the health care system.

^[1] Vitamin D is covered in [ePathWay issue #003](#)

^[2] Targeted therapy is covered in [ePathWay issue #013](#)

^[3] Multidisciplinary Cases Conferences is covered in [ePathWay issue #015](#)

[4] More information on these guidelines can be found at [RCPA ACEM Pathology Test Guidelines](#)

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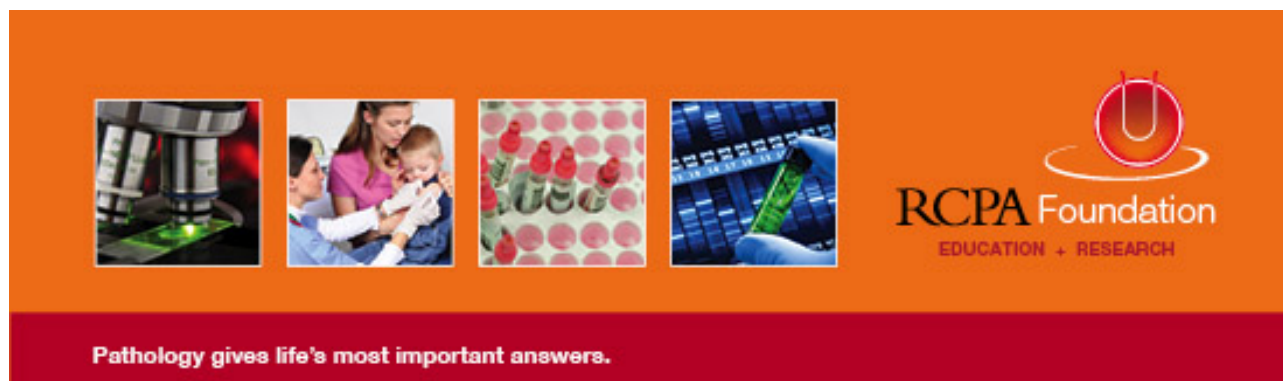
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Research and education in pathology is building a solid foundation



Two behind-the-scenes projects of the Royal College of Pathologists of Australasia (RCPA) are helping to build a solid foundation for the future of research and education. One has been going since 1969, and the other is just over 12 months old, but both underpin quality pathology in Australasia.

We'll talk about the elder of the two first. The then College of Pathologists of Australia decided to produce a quarterly scientific journal in 1967. It was duly named *Pathology*^[1] and the first edition was released in 1969.

Professor Brett Delahunt, the current editor of *Pathology*, says it is now an internationally recognised journal with seven editions produced each year including one with a purely educational focus.

"*Pathology* is a peer reviewed journal and we have an exceptional international review panel," he explains. "The journal has a rejection rate of approximately 60%, and this compares favourably with other major international journals."

Prof Delahunt says *Pathology* is designed to cater for the educational requirements of Fellows of the College and to advance medical science in the international arena.

The College Fellows are also key players in the newly minted RCPA Foundation^[2]. Officially launched

at the Pathology Update Conference Dinner in March last year, the Foundation actively invests in better health for future generations through its commitment to funding initiatives to gain a greater understanding of the causes of disease.

“The Foundation sees its role as fostering the research, careers and development of skills in young pathologists and scientists,” explains Associate Professor Paul McKenzie, Chairman of the RCPA Foundation.

He says there is a need for this type of activity since the major funding body for medical research, the National Health and Medical Research Council, mostly funds researchers with extensive track records and they favour large-scale projects, while other smaller funding organisations usually focus on clinical research into specific diseases.

“We have recently received a very generous donation to establish the Mike and Carole Ralston Travelling Fellowship,” says A/Prof McKenzie. “This award will help Fellows and Trainees of the College to gain international experience in the frontiers of genomic medicine which will in turn enhance the delivery of genomic medicine in Australasia.”

The RCPA Foundation is also administering prizes and scholarships previously funded through the RCPA’s Board of Education. There are also a number of events designed to support the Foundation’s mission such as the RCPA Foundation Adelaide Dinner^[3] on 25 June.

Despite the generational gap between these two projects, they are both contributing to research and education in pathology in a significant way. And perhaps as time goes by, the research that is funded through the RCPA Foundation will find its way into *Pathology*. If it does, it will be testimony to money well spent towards the future of the profession.

[1] Information about the Pathology journal is found at: <http://journals.lww.com/pathologyrcpa/pages/default.aspx>

[2] Information about the RCPA Foundation is found at: <http://www.rcpa.edu.au/About/Foundation.htm>

[3] Information about the RCPA Foundation Adelaide Dinner is found at: <http://www.rcpa.edu.au/about/Foundation/events.htm> or contact Jodie Campbell on (02) 8356 5839 or jodiec@rcpa.edu.au.

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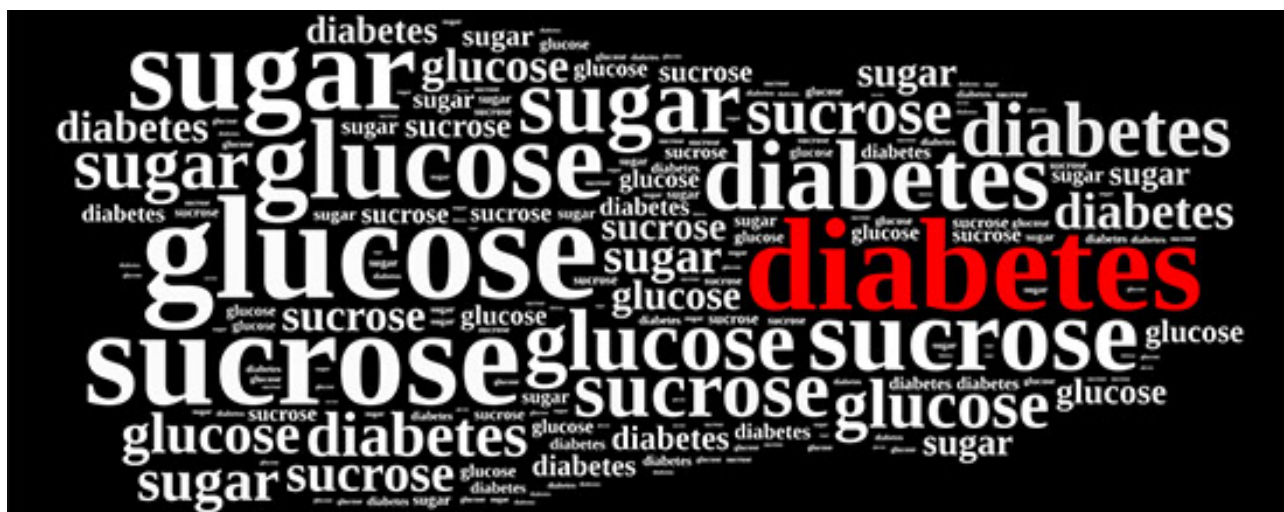
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Proposed guidelines for gestational diabetes is not a casual decision



When the medical profession investigates changing established guidelines of clinical practice it's never a casual decision. It's a process where key stakeholders examine the evidence for the change to make sure it will deliver better health outcomes. The guidelines for the testing and diagnosis of gestational diabetes mellitus (GDM) in Australia is in the midst of this process, with the Australasian Diabetes in Pregnancy Society (ADIPS) leading the charge.

Dr Graham Jones, chemical pathologist at St Vincent's Hospital in Sydney, says the guidelines for testing and diagnosing GDM in Australia haven't been updated since 1991.

"But it isn't change for change's sake. It's a debate among the international medical community to work out the best practice and in the end produce a result for better patient care and management," he says.

The previous guideline recommends that pregnant women have a glucose challenge test at 26-28 weeks of gestation. This is a non-fasting test and involves attending a pathology collection centre, drinking some glucose and then having a blood test one hour later.

The proposed guidelines recommend that pregnant women with a high risk of GDM have an oral

glucose tolerance test (OGTT) at the first opportunity after conception, and then again, along with all pregnant women, at 24-28 weeks gestation. The interpretation of the OGTT is also revised in these guidelines.

“One issue is the glucose challenge test was not seen as a particularly good test, and replacing it with the OGTT could mean the woman’s visit to the pathology collection centre is optimised with a more accurate result,” says Dr Jones.

The OGTT is a fasting test that involves a glucose drink, three blood tests and about 2-3 hours of time. This, says Dr Jones, is a potential issue because it is more resource intensive.

“The revised OGTT will detect more cases of GDM and reflects increased risk of adverse events in pregnancy. The question the clinicians to work through is whether you can intervene to stop the complications in these extra cases of GDM.”

Pathology laboratories are finding it difficult at present to determine which tests to offer to identify cases of GDM, although laboratories are responding to the specific requests of their local clinicians. As part of the way forward, the Royal College of Pathologists of Australasia (RCPA) is advising how to solve the testing conundrum from the pathology side of the equation.

Dr Jones says the College’s current role is to support their clinical colleagues in establishing the guidelines by providing information such as the availability of the tests in question, how they are performed and the effect of the selected reference intervals on diagnosis rates.

“There may be a significant increase in the number of OGTTs performed each year both in the private and public system. This will mean increased resources are required but will the benefit be there in terms of mother and baby health outcomes?”

ADIPS say yes, and point out that there has been a change in the demographics of women becoming pregnant as well as an increased rate of type 2 diabetes mellitus in the Australian community. Additionally, a study from 2008 reported a strong correlation between increasing maternal glucose levels at 24-32 weeks gestation and a range of adverse maternal and fetal outcomes.

And so the debate will continue, with the evidence and benefits discussed by key stakeholders until a resolution is reached. But the winners will be pregnant women, because changes to guidelines aren’t made for the sake of change. They occur in response to new evidence for better patient outcomes. And that’s a debate worth having.

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Thyroid cancer is still common after all these years



Thyroid cancer is a common disease and its prevalence is rising. The genetic revolution is also uncovering information about possible underlying genetic mutations associated with this cancer, but there's still a lot more to learn. Although most people who develop thyroid cancer have an excellent prognosis, accurate diagnosis is vital — and that depends on the skills of pathologists.

The thyroid^[1] is a small butterfly-shaped gland located in the front of the neck below the voice box (larynx). It has two lobes, one on each side of the windpipe, connected by tissue called the isthmus. It consists predominantly of follicular cells which secrete iodine-containing hormones called thyroxine (T4) and triiodothyronine (T3). The thyroid needs iodine to produce these hormones, which in turn regulate the function of many other organ systems in the body.

“Thirty years ago there was no way of telling if a lump in the thyroid gland was benign or malignant without removing it surgically,” says Dr Anthony Gill, surgical pathologist at Royal North Shore Hospital. “Now people with a lump in their thyroid usually have an ultrasound and a fine needle aspirate biopsy to find out if it’s a benign lesion. If it is, then it’s safe to leave it alone.”

When pathologists examine a fine needle sample they now give their findings as a rating. If this rating is over a particular number then they can confirm it's definitely cancerous, and under a particular number they can confirm it's definitely non-cancerous (benign). But Dr Gill says it's the middle 'grey' zone where their expertise is particularly needed.

"Diagnosing cancers in this grey zone can be challenging and what we find determines a person's treatment," he explains. "There is also one particular type of thyroid cancer which is dramatically increasing in prevalence and that is papillary thyroid cancer (PTC). Many studies have shown that its incidence has more than doubled over the past 30 years."

Dr Gill says it's not known why this is the case. PTC is the most common type of thyroid cancer and is responsible for more than 85% of cases. Its increased incidence may be due to better diagnostic ability or radiation. However Dr Gill thinks the most likely reason for the increase is the detection and treatment of small incidental PTCs, and most of these would not have caused a problem during a person's lifetime.

"In one study, 35% of all people were found to have small PTCs when their entire thyroid glands were examined after they died from other causes."

A major problem for pathologists is how to distinguish these small incidental PTCs which have no ill effect from PTCs with the potential to spread and eventually cause death.

"One solution may be in testing for an abnormality in the BRAF gene which occurs in about 70% of PTCs but never in benign thyroid tissue," Dr Gill explains.

"So if a fine needle biopsy was in the 'grey zone' and found to have a BRAF mutation, you can be sure the patient has cancer and needs surgery."

The BRAF gene makes a protein called B-Raf which is involved in sending signals to direct cell growth inside cells. BRAF mutations are associated with cancers such as PTC and melanoma.

PTCs associated with the BRAF mutation are more likely to spread and become aggressive and less likely to respond to radioiodine treatment. They also have a higher risk of developing into anaplastic thyroid cancer which can spread to surrounding tissues, such as the trachea, very quickly with a very poor prognosis.

There is some good news though. Although it's early days, research is showing that the same targeted therapies^[2] which work on patients with melanoma and BRAF mutation may have a role in treating patients who have anaplastic thyroid cancer – but only if they have a BRAF mutation.

Identifying this mutation is therefore important, and Dr Gill says the preferred approach in his laboratory is immunohistochemistry. This involves detecting antigens (proteins) in the cells of a tissue specimen because antibodies bind specifically to antigens (such as those expressed by cancers) in biological tissues. It is widely used in the diagnosis of abnormal cells such as those found in cancerous tumors, and he says his laboratory is pioneering this technique with the BRAF mutation for PTC.

Our knowledge of thyroid cancer has come a long way in 30 years with discoveries such as the BRAF mutation. And while there's still more to learn, it's good that our understanding of this disease is growing because it's one of the cancers that are still common after all these years.

[\[1\] Thyroid disease is covered in ePathWay issue #016](#)

[\[2\] Targeted Therapy is covered in ePathWay issue #013](#)

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