



PathWay

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA



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Issue #065

In This Issue

- All the Australian Red Cross Blood Service wants for Christmas is blood donations
- Ciguatera poisoning is the 'gift' that keeps on giving
- Here's hoping 2017 is a positive year for triple negative breast cancer
- Pathology Update 2017 puts 13,000 years of expertise under one roof

Welcome to the December 2016/January 2017 edition of ePathWay

It's the holiday season when many organisations are slowing down or taking a break. A notable exception is blood banks that need life-saving blood donations all year round. In fact, giving a blood donation may be among the greatest gifts you can give at Christmas (and at any other time of the year).

Our other stories explain why:

- Uncle Bob developed ciguatera poisoning.
- Our fingers are crossed for a breakthrough with potential new treatments for triple negative breast cancer in 2017.
- Pathology Update conferences harness at least 13,000 years of collective medical learning under one roof (the next conference is from Friday 24 – Sunday 26 February 2017 at the International Convention Centre, Sydney).

Merry Christmas and Happy New Year from the ePathWay editorial team. We will be back in February 2017, and until then you can catch up with pathology news on [Facebook](#) and [Twitter](#).

Interesting Facts

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The number of reasons for a transfusion: cancer, operation, anaemia, iron deficiency, bleeding disorder, and pregnancy & childbirth.

5

The number of types of transfusions: red cell, platelet, plasma, cryodepleted plasma and cryoprecipitate.

All the Australian Red Cross Blood Service wants for Christmas is blood donations

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The number of blood types: O negative, O positive, B negative, B positive, A negative, A positive, AB negative and AB positive.

Source: Australian Red Cross Blood Service

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Some Christmas wish lists are very long, but the Australian Red Cross Blood Service has just one 'gift' on theirs – blood donations. We caught up with Dr Joanne Pink, RCPA Fellow, Haematologist, and Chief Medical Officer/Executive Director of Clinical Services and Research at the Australian Red Cross, to talk about blood donations over the Christmas period.

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Ciguatera poisoning is the 'gift' that keeps on giving

You can get everything right for Christmas lunch. Uncle Bob is behaving (so far). Food safe principles are followed to the letter. The reef fish is fresh, cooked to perfection and tastes great. But then everyone who eats the fish comes down with food poisoning. What could have gone wrong?



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Here's hoping 2017 is a positive year for triple negative breast cancer

As we bid 2016 adieu, let's hope 2017 heralds a breakthrough for triple negative breast cancer (TNBC) treatment. The breakthrough is needed because, unlike other types of breast cancer, TNBC doesn't have a [targeted therapy](#) limiting effective treatment options.



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Pathology Update 2017 puts 13,000 years of expertise under one roof

If history and maths interest you, then this concept may grab your attention. About 1,000 pathologists attend the RCPA's Pathology Update conference every year. It takes a [minimum](#) of 13 years of study to become a pathologist. This means Pathology Update harnesses at least 13,000 years of collective medical learning in one venue. To put that into perspective, if we count back 13,000 years in history, we'd land in the Mesolithic period (middle Stone Age).



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- Footballer Sam Reid celebrated International Pathology Day with personal tribute to pathology
- New diabetes 'care sets' could prevent complications and save money
- Lay Committee helped the College identify the ideal

Welcome to the November edition of ePathWay

The fourth International Pathology Day was celebrated around the globe last week. RCPA President Dr Michael Harrison stated that the celebrations highlighted the value of pathology in health care, and in every person's life.



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All the Australian Red Cross Blood Service wants for Christmas is blood donations



Some Christmas wish lists are very long, but the Australian Red Cross Blood Service has just one 'gift' on theirs – blood donations. We caught up with Dr Joanne Pink, RCPA Fellow, Haematologist, and Chief Medical Officer/Executive Director of Clinical Services and Research at the Australian Red Cross, to talk about blood donations over the Christmas period.

Why is donating blood important at Christmas time when most people are on holidays?

The need for blood never takes a break and donated blood will be needed every day over the holiday season to treat many sick and seriously ill people. Each week Australia needs 25,000 blood donations to help a variety of patients, and Christmas time is no different.

Is this why you have a Christmas Blood Blitz?

Yes. We find that we have a shortfall of donors due to 'holiday mode', so our Christmas Blood Blitz helps us to fill appointments and raise awareness of the need for blood during this critical time of year.

Why is it a critical time of year?

Holidays can be a time of severe road trauma, and although there are fewer of these patients, individually they can need many litres of donated blood.

Can you stockpile blood products to use over the holiday period?

No. Platelets only have a shelf-life of five days. Red cells have a shelf-life of six weeks. Some of the components used by cancer patients are also used daily. In fact, every week over a third of all donations are used by cancer patients. The limited shelf-life and high demand for blood products means they can't be stockpiled. This is why we need a constant stream of blood donors.

What would you say to people who are considering donating blood this Christmas?

One in three of us will need a blood transfusion in our lifetime. The life you save this Christmas could be your own or that of a loved one. If you are a potential first time donor, then it's important to know that blood donation is a simple and easy activity that makes you feel good. It might be the most important 'gift' that you give this Christmas, and we will give you a gift as well; free food and a drink afterwards.

To give blood in Australia between 24 and 31 December, please call 13 14 95 or visit donateblood.com.au. You can find out about donating blood in New Zealand on the New Zealand Blood Service [website](#).

Blood transfusions were covered in the [July 2011](#) edition of ePathWay.

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Ciguatera poisoning is the 'gift' that keeps on giving



You can get everything right for Christmas lunch. Uncle Bob is behaving (so far). Food safe principles are followed to the letter. The reef fish is fresh, cooked to perfection and tastes great. But then everyone who eats the fish comes down with food poisoning. What could have gone wrong?

The culprit could be ciguatera poisoning which is a form of food poisoning caused by ingesting ciguatera toxins (CTX). These toxins are produced by tiny organisms called dinoflagellates that attach themselves to algae growing in warm ocean reef areas. Small plant-eating fish ingest dinoflagellates when they nibble on the algae, larger predatory fish eat these fish, and this bioaccumulation through the food chain results in large reef fish contaminated with CTX. But how do you know which one is a toxic time bomb?

You can normally tell when a fish 'off' by its smell and appearance. But CTX doesn't affect these attributes, or the taste of the fish, and cooking, freezing and stomach acid does not destroy them. This means you can't be sure if a fish is contaminated until you eat some and experience the symptoms.

"Symptoms first occur within an hour and up to 48 hours later, depending on how much fish is eaten and how much CTX is in the fish," explains Dr Daman Langguth, Clinical Immunologist and Immunopathologist at Sullivan Nicolaides Pathology.

Symptoms may be gastro-intestinal such as nausea, vomiting, diarrhoea and abdominal cramps, and neurological such as tingling and numbness in the hands and feet, and around the lips, tongue, mouth and throat, altered sensory perception, headache, pain, weakness, itching, shakiness, tiredness, loss of muscle strength, and hot and cold reversal.

“The hot and cold reversal is a classic symptom of ciguatera poisoning. This is when hot objects feel cold, and cold objects feel hot,” says Dr Langguth.

Some neurological symptoms can persist for months, and even years. Cardiology symptoms can also develop including slow heart rate (bradycardia), low blood pressure (hypotension) and irregular heartbeat (arrhythmia).

“Diagnosis is clinically through signs and symptoms as well as a history of ingesting fish likely to be contaminated with CTX. There isn’t a blood test or specific treatment for ciguatera poisoning, other than managing the presenting symptoms,” says Dr Langguth.

Fish related to this disease vary by region, but are all categorised as reef fish. They can also turn up on any dinner table in the world thanks to global food chains.

So, what can you do? Apart from asking for a volunteer to eat a small portion of fish and then watching them for early symptoms (are you hungry Uncle Bob?), the only way to absolutely mitigate the risk is to source fish that don’t feed in warm ocean waters. You can also reduce the risk by only eating fish that weigh less than 6kg (for the whole fish).

People who succumb to ciguatera poisoning should then avoid eating reef fish for a few months (thanks for taking one for the team Uncle Bob), and skip drinking alcohol for about three months because it can cause the symptoms to recur (it’s good for your liver Uncle Bob).

So, long after the Christmas debris is packed away for another year, ciguatera poisoning can be the ‘gift’ that keeps on giving. (Merry Christmas Uncle Bob. We promise we’ll have turkey next year.)

And the ‘suspects’ are ...

Chinamanfish, red bass and paddletail present a particularly high risk for ciguatera poisoning and should be avoided.

Other fish capable of carrying CTX include coral trout, Spanish mackerel, red emperor, wrasse, coral cod, surgeonfish, trevally and yellowtail kingfish.

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Here's hoping 2017 is a positive year for triple negative breast cancer



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"The outcome for breast cancer is quite good in developed countries, and especially in Australia. Almost 90% of women diagnosed with early breast cancer in Australia are alive five years down the track. There are two main reasons for this, breast cancer screening and the availability of targeted therapies for breast cancer's expressing hormone or HER2 receptors, but unfortunately there isn't a targeted therapy for TNBC," explains Professor Sandra O'Toole, Anatomical Pathologist at the Royal Prince Alfred Hospital in Sydney.

Unlike other types of breast cancer, TNBC lacks expression of oestrogen receptors (ER), progesterone hormone receptors (PR) or HER2 receptors commonly found on breast cancer cells. The presence of any of these receptors makes targeted therapy possible. The absence of all of these receptors is the key to diagnosing TNBC.

"The pathologist must be certain the tumour truly lacks expression of oestrogen, progesterone and HER2 receptors. This is vital because a TNBC diagnosis decreases treatment options, and the tumours tend to be more aggressive. This is also a reason why testing in an [accredited laboratory](#) is essential," explains Prof O'Toole.

She says the testing procedure for TNBC should be suitably controlled, and the tissue should be fixed properly before a pathologist examines it.

“Optimal fixation of breast cancer specimens is actually the second recommendation in the recently released [Influencing Best Practice in Breast Cancer Statement](#) by Cancer Australia.”

Prof O’Toole says about 10 to 15% per cent of breast cancers are triple negative. They also have an increased risk of being associated with mutations in the Breast Cancer 1 (BRCA1) gene. BRCA1 acts as a tumour suppressor that is important in DNA repair. If this tumour suppressor gene is defective, then breast cells are more likely to develop additional genetic alterations that promote the development of cancer.

Understanding the genetic signature of different types of breast cancers has boosted both the understanding and treatment options for this disease, but there is still much more to discover. For example, being ER negative, PR negative and HER2 negative means a lot of research into TNBC is focused on finding new targets for therapies.

“If and when this breakthrough happens, pathologists will be involved because they are the medical professionals who are able to analyse tumours to determine which cancers are most likely respond to particular treatments. Let’s hope 2017 is the year researchers make the breakthrough with potential new treatments for TNBC.”

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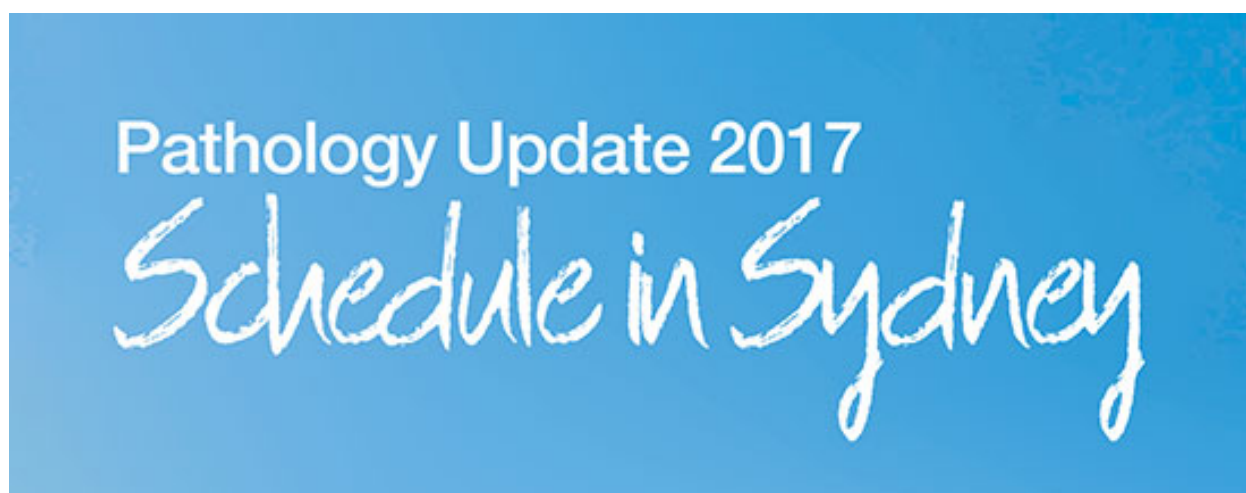
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It's lucky we're not being treated in the Stone Age. At that time diseases were 'cured' by witch doctors who used supernatural treatments such as charms, spells and amulets to ward off evil spirits.

The [Pathology Update 2017](#) program is therefore reassuring, even if some of it might not make sense to a lay audience. Presentations such as *sequencing immune repertoires in cancer non-progressors*, *salivary gland tumours at the interface of benign and malignant*, and *pericarditis, myocarditis and large vessel infections* may seem daunting to the non-medically trained, but at least there's not a spell or amulet in sight. Just best practice medicine based on the best available or emerging evidence.

The RCPA's Events and Sponsorship Manager, Ms Eve Propper, says over 140 local Australasian speakers will present at the conference. Nine international speakers are also presenting such as Dr Charles Mullighan from St Jude Children's Research Hospital in Memphis, and Dr Jennifer Hunt from the University of Arkansas Medical School.

"Dr Mullighan is presenting in the Haematology Scientific Stream, and Dr Hunt is presenting the Eva Raik Plenary Lecture and presenting in the Anatomical Scientific stream. You can read their biographies, and those of all of the international speakers, on the College's [website](#)," she explains.

“The conference’s Scientific Program includes three days of presentations across all of the seven streams of pathology, and this is a unique feature of all Pathology Update conferences. Delegates can attend any session, including those outside of their specialised areas. There is also the Roche Scientific Poster display, trainee prizes, exhibition and sponsorship displays and social events.”

Pathology Update conferences are also international affairs, and pathologists from countries such as Belgium, China, Germany, Saudi Arabia and Korea have attended in past years.

The statistics associated with each conference are also impressive, such as about 150 speakers, eight concurrent sessions, over 1,200 attendees etc., but the most imposing is the years of collected study represented at each conference. If you mapped these years on a medical timeline, then it would range from spells and charms in the Stone Age to the current evidence based genomic age which is unlocking the secrets of even the most elusive diseases. What a difference 13,000 years makes!

[Pathology Update 2017 Schedule in Sydney](#) runs from Friday 24 to Sunday 26 February 2017 in the new International Convention Centre Sydney (which overlooks Darling Harbour).

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