



PathWay

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA



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Issue #043

In This Issue

- Santa's annual eating binge won't affect one particular test for diabetes
- King hits, alcohol and holiday hearts can spoil the party
- Clinical Forensic Medicine plays a key part in assessing child abuse
- Pathology helps diagnose and manage PCOS

Welcome to the December/January edition of ePathWay

The holiday season is a time when people may feel like letting their hair down and partying, eating and drinking more than usual. They may also wonder what it does to their blood sugar levels! But the latest diagnostic test for diabetes in Australia isn't affected by binges which is good news for super-binging Santa who eats thousands of treats on Christmas Eve!

Our newest Faculty of Clinical Forensic Medicine is highlighted with an insight into pathology and child abuse. We've also asked an expert about king hits and alcohol, and pinned down the elusive polycystic ovarian syndrome.

This is our last issue for 2014 so we wish you all a Merry Christmas and a safe New Year.

While we're on holidays stay in touch through our [Facebook](#) page and follow our CEO Dr Debra Graves (@DebraJGraves) or the College (@PathologyRCPA) on Twitter.

Interesting Facts

366 million

The number of people worldwide with diabetes

3.61 million

The estimated number of Australians who have diabetes

Santa's annual eating binge won't affect one particular test for diabetes

Over 240,000

The number of people diagnosed with diabetes in New Zealand, and an estimated 100,000 others might have it but don't know it

Sources: Diabetes NSW, New Zealand Ministry of Health

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If you're worried about binge eating and your health over Christmas, spare a thought for Santa. Our rotund friend who is a likely candidate for diabetes eats kilos of carbs on Christmas Eve in the form of biscuits, cakes and pies left out by children to help him on his way. But a new test on the Medicare Schedule in Australia to diagnose diabetes wouldn't be affected by his annual Christmas Eve binge, and Santa wouldn't need to stop his sleigh for more than the time it takes to have a single blood test.

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When we asked Professor Jo Duffou, Clinical Director of the Department of Forensic Medicine in Sydney, about king hits he replied: "What does that term even mean? It's as non-descriptive as 'point blank range' and it isn't a term forensic pathologists use." So what is a 'king hit' in forensic pathology terms?



"A king hit is essentially a case of a single blow or limited number of blows to the head where the person dies very rapidly through one of three mechanisms," explains Prof Duffou. "These mechanisms are contre-coup head injury, acute subdural haemorrhage and traumatic basal subarachnoid haemorrhage."

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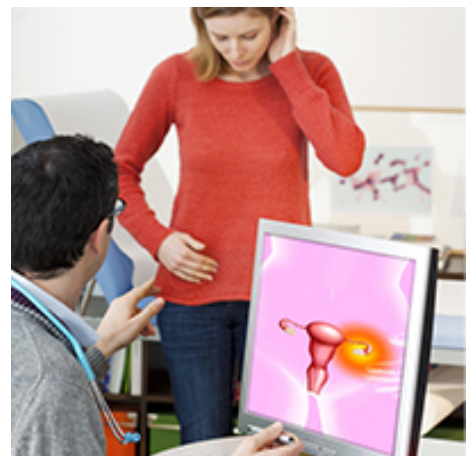


“The aim of the forensic assessment of an injured child is to intervene at the earliest stage possible to alter the trajectory of a child's life in the hope this process significantly improves their safety and many other aspects of their life,” explains Dr Anne Smith, Paediatrician and Medical Director of the Victorian Forensic Paediatric Medical Service.

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Pathology helps diagnose and manage PCOS

Polycystic ovarian syndrome (PCOS) affects approximately 12-18% of women of reproductive age. About 70% of women with PCOS remain undiagnosed, yet it is one of the leading causes of infertility. Not all women with PCOS have multiple cysts on their ovaries (as the name suggests), and not all women with multiple ovarian cysts have PCOS. There isn't a single test that confirms the diagnosis either. It's what you might call an elusive syndrome!

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Previous Editions



2014

[033 - February 2014](#)

[036 - May 2014](#)

[039 - August 2014](#)

[042 - November 2014](#)

[034 - March 2014](#)

[037 - June 2014](#)

[040 - September 2014](#)

[035 - April 2014](#)

[038 - July 2014](#)

[041 - October 2014](#)

2013

[022 - February 2013](#)

[023 - March 2013](#)

[024 - April 2013](#)

[025 - May 2013](#)

[026 - June 2013](#)

[027 - July 2013](#)

[028 - August 2013](#)

[029 - September 2013](#)

[030 - October 2013](#)

[031 - November 2013](#)

[032 - Dec 2013/Jan 2014](#)

2012

[010 - Dec 2011/Jan 2012](#)

[011 - February 2012](#)

[012 - March 2012](#)

[013 - April 2012](#)

[014 - May 2012](#)

[015 - June 2012](#)

[016 - July 2012](#)

[017 - August 2012](#)

[018 - September 2012](#)

[019 - October 2012](#)

[020 - November 2012](#)

[021 - December 2012](#)

2011

[001 - March 2011](#)

[002 - April 2011](#)

[003 - May 2011](#)

[004 - June 2011](#)

[005 - July 2011](#)

[006 - August 2011](#)

[007 - September 2011](#)

[008 - October 2011](#)

[009 - November 2011](#)

[« Back to Home Page](#)

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Santa's annual eating binge won't affect one particular test for diabetes



If you're worried about binge eating and your health over Christmas, spare a thought for Santa. Our rotund friend who is a likely candidate for diabetes eats kilos of carbs on Christmas Eve in the form of biscuits, cakes and pies left out by children to help him on his way. But a new test on the Medicare Schedule in Australia to diagnose diabetes wouldn't be affected by his annual Christmas Eve binge, and Santa wouldn't need to stop his sleigh for more than the time it takes to have a single blood test.

"The blood test glycated haemoglobin or HbA1c was added to the Medicare Schedule on November 1 this year as a test to diagnose diabetes in high-risk patients. It was due to be added to the schedule in May 2015, but it was brought forward and is available now," explains Associate Professor Ken Sikaris, chemical pathologist with Melbourne Pathology.

HbA1c is a single blood test that measures the average amount of glucose in the blood over a three-month period. It doesn't require any special preparations such as fasting and drinking glucose drinks. New Zealand has offered HbA1c as a diagnostic test for diabetes for two years.

A/Prof Sikaris says doctors in Australia can now request an HbA1c blood test to diagnose people who have a high risk of diabetes, including those who are overweight or obese (we're looking at you Santa!).

"Being overweight or obese has an association with diabetes, especially if the fat is stored in the abdominal area. We also know that 10 percent of Australians have diabetes and 63% of our population are also overweight or obese."

A/Prof Sikaris says a lot of people in Australia avoid being tested for diabetes over the festive season because of their indulgent eating habits. This is no longer an issue with an HbA1c test.

“The latest survey shows that a quarter of people in Australia with diabetes don’t know they have it. It’s important for people who have a high risk to be tested so they can receive appropriate medical treatment and advice,” says A/Prof Sikaris.

Such advice might be timely for Santa who has had a BMI on wrong side of the scales for decades. He could reliably find out if he has diabetes through a simple HbA1c blood test over the festive season no matter how many pies, biscuits or cakes he indulges in on Christmas Eve, and possibly come back next year slimmer and healthier than ever.

HbA1C is also covered in the [September 2012](#), [November 2013](#) and [July 2014](#) editions of ePathWay.

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When we asked Professor Jo Duflou, Clinical Director of the Department of Forensic Medicine in Sydney, about king hits he replied: "What does that term even mean? It's as non-descriptive as 'point blank range' and it isn't a term forensic pathologists use." So what is a 'king hit' in forensic pathology terms?

"A king hit is essentially a case of a single blow or limited number of blows to the head where the person dies very rapidly through one of three mechanisms," explains Prof Duflou. "These mechanisms are contre-coup head injury, acute subdural haemorrhage and traumatic basal subarachnoid haemorrhage."

A contre-coup head injury can happen when a person falls over backwards from their own height and hits the back of their head, but the most damage occurs at the front of the head.

"This can happen from a punch or a person can cause this injury to themselves if, for example, they are drunk and fall over," explains Prof Duflou.

An acute subdural haemorrhage occurs when a blow to the head causes the head to rotate and tear small blood vessels over the surface of the brain resulting in bleeding inside the skull but outside the brain. A person with this type of injury may not die instantly, and many will survive with emergency surgery.

"The final mechanism is a traumatic basal subarachnoid haemorrhage from a punch to the side of the head. People collapse and are deeply unconscious within seconds, and are often dead before they hit the ground due to bleeding from a tear in a major blood vessel to the brain. Interestingly, it takes relatively little force to cause this type of injury and death to a person," says Prof Duflou.

While there may be three mechanisms associated with these injuries, Prof Duflou says they often have one thing in common – alcohol.

“Alcohol predisposes people to head injuries, probably because reflexes are slower and the head moves faster and rips blood vessels at their weakest points,” he says. “It’s certainly not involved in all cases though.”

The effects of drinking too much alcohol can be very serious. For example, Prof Duflou says binge drinking can have a direct toxic effect on the heart muscle causing it to beat both fast and abnormally which is called atrial fibrillation.

“This has been called ‘holiday heart’ because people often drink more alcohol during holiday periods such as the festive season,” says Prof Duflou. “Alcohol is also a factor in 20% of motor vehicle accident fatalities in Australia and in 40% of sexual assault cases.”

Alcohol usually flows more freely over the festive season so being reminded of its dangers is timely. As for king hits, forensic pathology terminology is probably too technical for common use. But it’s insightful to know why sudden blows to the head are so dangerous, including the fact the force of the blow isn’t always the deciding factor that leads to death.

Professor Jo Duflou presented the talk Death by Alcohol at the New Zealand Society of Pathologists Annual Scientific Meeting in October 2014.

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"The aim of the forensic assessment of an injured child is to intervene at the earliest stage possible to alter the trajectory of a child's life in the hope this process significantly improves their safety and many other aspects of their life," explains Dr Anne Smith, Paediatrician and Medical Director of the Victorian Forensic Paediatric Medical Service.

"It's very important to gather medical evidence to rule in or rule out child abuse as the possible cause of injuries or illness. We must therefore be very accurate in our assessment to differentiate injuries inflicted by others from injuries caused by accidents or symptoms from medical conditions that could be confused with child abuse. When child abuse has been ruled out we can prevent unfair and unreasonable accusations against people who might have otherwise been accused of criminal behaviour such as abuse."

Dr Smith says the process for assessing a child for abuse is the same as a standard medical consultation in terms of gathering information, taking a medical history, conducting a physical examination and requesting further tests including pathology.

"We assess all of the evidence and put it together in a concise and logical medico-legal report. For example, if we suspect a baby has a subdural haematoma (bleeding into the brain usually from a traumatic event) from being shaken, then we will request radiology and pathology tests to help determine the diagnosis," she says.

"Alternatively, sometimes a child will have a condition that might look like it was caused by abuse but has a logical medical

explanation such as a skin infection that looks like a burn or vasculitis causing unexplained bruising. Sometimes direct evidence is also found such as the suspected offender's DNA on a bite mark on the child."

Dr Smith said the Royal College of Pathologists of Australasia (RCPA) formed a Faculty of CFM earlier this year. This new faculty is open to suitably qualified doctors who provide forensic services to the living.

The first round of Founding Members of the RCPA's Faculty of Clinical Forensic Medicine will be inducted at [Pathology Update 2015](#) in Melbourne early next year.

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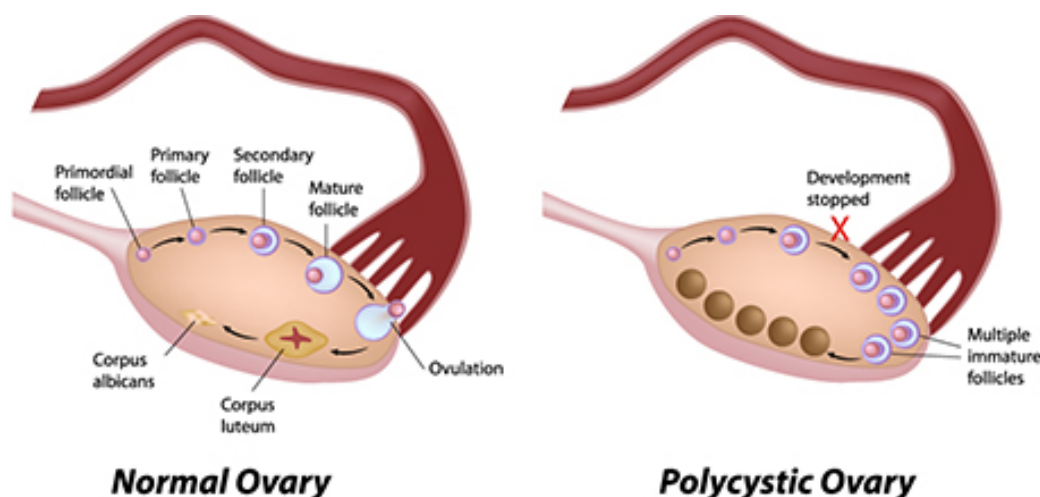
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Pathology helps diagnose and manage PCOS



Normal Ovary

Polycystic Ovary

Polycystic ovarian syndrome (PCOS) affects approximately 12-18% of women of reproductive age. About 70% of women with PCOS remain undiagnosed, yet it is one of the leading causes of infertility. Not all women with PCOS have multiple cysts on their ovaries (as the name suggests), and not all women with multiple ovarian cysts have PCOS. There isn't a single test that confirms the diagnosis either. It's what you might call an elusive syndrome!

Associate Professor Huy Tran, chemical pathologist and Chair of the Chemical Pathology Advisory Committee of the Royal College of Pathologists of Australasia (RCPA), says diagnosing PCOS usually involves ruling out other possible and important causes of symptoms before a diagnosis is made.

"PCOS is a syndrome with many aspects so we have to narrow down what the doctor is looking for based on presentation of symptoms and the patient's age. For example, women with PCOS are often overweight or obese, but we need to look for other causes of their weight issue such as Cushing's syndrome or hypothyroidism and rule them out first."

PCOS symptoms are many and vary with age. Younger women's symptoms are usually associated with their reproductive functions such as irregular periods or no periods at all and infertility, while the incidence of metabolic problems such as obesity, high cholesterol and diabetes increases with age. Some symptoms are the result of high levels of male hormones (androgens) including excess hair on the face or chest (hirsutism) or hair loss that mimics male baldness.

"There isn't one specific underlying cause of PCOS so the doctor will most likely concentrate on the aspect or symptoms causing the most concern at that time. They may also check that a tumour is not causing the production of male hormones. If cysts are found then they are often monitored unless they are big and become symptomatic for the patient," explains A/Prof Tran.

PCOS is not usually life threatening, but it is a lifelong condition requiring symptom management.

"It often presents in different ways depending on the woman's age, and pathology tests help with the diagnosis and

subsequent management of symptoms and their consequences for the rest of the woman's life."

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