



PathWay

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA



JUNE 2013 | Published by RCPA

Issue #026

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- Structured reports for iron studies will provide a clearer picture
- Current coronavirus outbreak source is still a mystery
- Hypothermia deaths don't just happen in cold climates

Interesting Facts

25-hydroxyvitamin D (25OH-D)

The form of vitamin D in the blood that is measured with a pathology test

Introduction

The inaugural Pathology Day (May 28) was a success with events held around the world. The winner of the iPad mini from the Royal College of Pathologists of Australasia (RCPA) for the best photos of their celebration in our part of the world is Dr Simone Van Es.

A compilation of Pathology Day events that have been advised to the College can be viewed at [Pathology Day winner](#).

Other Pathology Day events saw the RCPA and International Liaison of Pathology Presidents (ILPP) introduce a new statement surrounding international best practice in the diagnosis and management of cancer. RCPA Vice President Dr Michael Harrison also announced the College's position statement on the use and interpretation of vitamin D testing (featured in this issue).

Another RCPA initiative in this issue is the recently released Iron Studies Standardised Reporting Protocol to help clarify the use of blood tests for iron levels.

Coronavirus is also making headlines with the World Health Organization and pathologists wondering if we're on the verge of another SARS-like outbreak in the Middle East. We talked to Associate Professor Lance Jennings to find out what's happening.

And with the advent of winter, spare a thought for people who may lose their life through hypothermia – but it's not just a winter affliction that affects the homeless! Professor Jo Duflou explains why.

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.

Greater than 50
nmol/L

The target level of 25OH-D at the
end of winter

3 months

The minimum time between
starting vitamin D supplementation
or changing the dose and being
retested

Source: Use and Interpretation of Vitamin D testing position
statement by the Royal College of Pathologists of
Australasia (RCPA)

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RPCA makes its position clear on when to test for vitamin D



If vitamin D had a facebook page it would probably have millions of followers. After all, it's the 'vitamin' of the moment with many studies pointing to a range of diseases linked to vitamin D deficiency. But when do you test for it? The Royal College of Pathologists (RCPA) has responded to this conundrum by producing a position statement on the *Use and Interpretation of Vitamin D Testing*^[1].

Structured reports for iron studies will provide a clearer picture

Have you ever had poor reception on an old telly and had to adjust the aerial to reduce the static clouding the picture? Well, that's basically an analogy for what a working group of pathologists has done with reporting iron studies. A traditional 'grey area' of interpretation, this group has produced a new protocol^[1] to improve the way these tests are reported and interpreted by introducing a standardised reporting structure.



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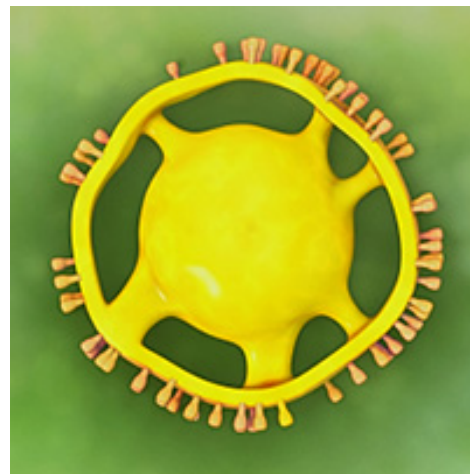
Links

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Current coronavirus outbreak source is still a mystery

The current outbreak of the novel coronavirus (nCoV) in the Middle East has the World Health Organization (WHO) on alert and pathologists and others wondering whether the world is on the verge of another epidemic similar to the Severe Acute Respiratory Syndrome (SARS) outbreak 10 years ago.



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Hypothermia deaths don't just happen in cold climates

If you think people only die from hypothermia in bitterly cold weather, then think again. People can and do die from hypothermia in places with a temperate climate – such as Sydney – and not only in winter. Professor Jo Duflou, clinical director of the Department of Forensic Medicine in Sydney, says they see cases in autumn and spring as well, although summer deaths are rare.



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RCPA Message



Pathology gives life's most important answers.



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Previous Editions



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- Research and education in pathology is building a solid foundation
- Proposed guidelines for gestational diabetes is not a casual decision
- Thyroid cancer is still

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

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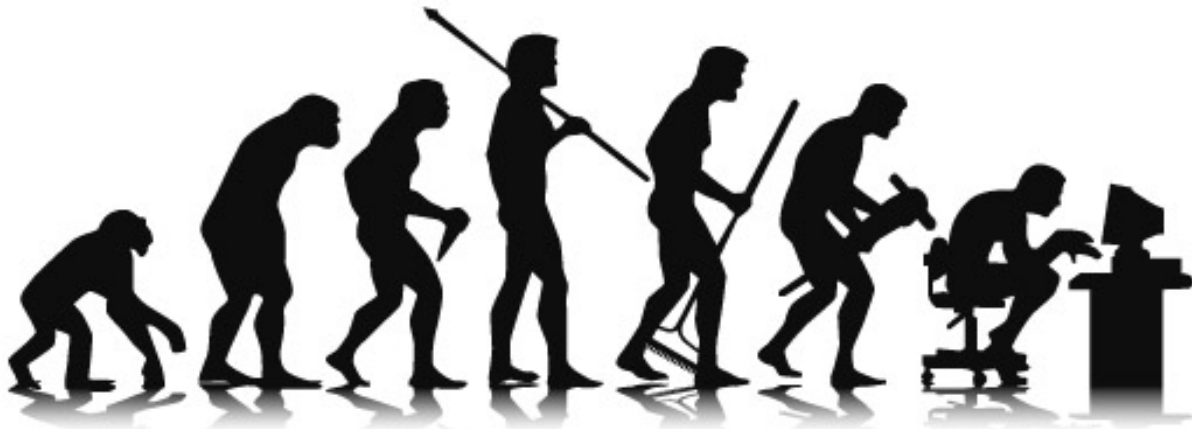
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RPCA makes its position clear on when to test for vitamin D



If vitamin D had a facebook page it would probably have millions of followers. After all, it's the 'vitamin' of the moment with many studies pointing to a range of diseases linked to vitamin D deficiency. But when do you test for it? The Royal College of Pathologists (RCPA) has responded to this conundrum by producing a position statement on the Use and Interpretation of Vitamin D Testing^[1].

"The RCPA has produced a number of evidence-based recommendations to clarify the role of vitamin D tests in terms of diagnosing and monitoring deficiency states and their treatments," says Dr Michael Harrison, Vice President of the RCPA.

The position statement outlines indications for testing of vitamin D for adults and for children and gives a desired level as $>50\text{nmol/L}$ at the end of winter.

"We qualified this threshold at the end of winter because this is when the levels are at their lowest," Dr Harrison explains. "We don't recommend routine screening for vitamin D deficiency, but only testing when there are indications such as people with signs, symptoms and planned treatment for osteoporosis or osteomalacia (softening of the bones), or people with chronic renal failure and

transplant recipients. The other main group who should be tested are those with chronic or severe lack of sun exposure.”

Having some guidance based on evidence will help to clarify the situation. Our tenuous relationship with vitamin D seems to be related to having bodies designed to be hunter/gatherers as opposed to living in a society where we have easy access to food all year round.

Our lifestyle also means we are now active all year round – not just in the seasons when food was traditionally plentiful. Our ancestors, especially those who lived in higher latitudes, adapted for times like winter when they had less food, were less active and needed to conserve energy and not bear children at this time. Variable vitamin D levels were one way that their bodies regulated themselves according to the season.

Dr Harrison says our modern lifestyle means we need vitamin D levels that are more reflective of summer all year round otherwise we manifest diseases such as bone disease or increased osteoporotic fractures, our muscles don't work as well and we are more likely to be obese. Very little vitamin D comes from our diet and it is almost exclusively a product of UVB sunlight exposure to the skin.

“Vitamin is a misnomer in that it behaves more like a hormone, and sunlight powers the conversion of cholesterol into vitamin D in the skin. If you have dark skin then you need more sunlight for this conversion to take place.”

It's often difficult to separate the hype from the facts, especially when the quality of the evidence for the health benefits of having an adequate vitamin D level is still highly variable. The RCPA's position statement is a welcome clarification about when to test for vitamin D, and may reduce the commotion that seems to surround this important 'vitamin'.

[1] [The position statement - Use and Interpretation of Vitamin D Testing](#)

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

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Structured reports for iron studies will provide a clearer picture



Have you ever had poor reception on an old telly and had to adjust the aerial to reduce the static clouding the picture? Well, that's basically an analogy for what a working group of pathologists has done with reporting iron studies. A traditional 'grey area' of interpretation, this group has produced a new protocol^[1] to improve the way these tests are reported and interpreted by introducing a standardised reporting structure.

Dr Stephen Flecknoe-Brown, Chairman of the National Blood Authority's Anaemia Management Working Group, Clinical Pathologist and Consultant Physician, was a member of the working group. He says the new protocol will give doctors a series of defined parameters for iron studies which have been poorly explained and standardised in the past.

"We borrowed from the concept of structured reporting for cancer and, based on good evidence, applied it to reporting iron studies. This new format should eliminate many misunderstandings that have happened in the past based on interpretation of the results."

Iron status is reported in a group of tests known as iron studies. These tests determine the amount of iron in the blood and the amount of iron in storage. Iron is an important element because iron deficiency limits oxygen delivery to cells as well as the cells' ability to trap and harness oxygen. Dr Flecknoe-Brown says most clinicians look to the haemoglobin level for oxygen delivery, although trapping and delivery of oxygen for energy delivery at the cellular level depends upon iron storage.

"We know from epidemiology that 20 percent of children and 10 percent of women in their reproductive years are iron deficient," explains Dr Flecknoe-Brown. "But there was a lack of clarity about what iron deficiency is. We have agreed that the ferritin level is the most consistent measure of stored iron."

Ferritin is an intracellular protein that stores iron and releases it in a controlled fashion. The serum ferritin level reflects the amount of iron stored. Since it is the most important parameter, the protocol also recommends putting ferritin first on pathology reports to 'set the scene' which is a far cry from its traditional spot - last.

This may not seem like a big change, but Dr Flecknoe-Brown says one of the most important misunderstandings in interpreting iron studies has been an overemphasis on serum iron.

"Serum iron levels fluctuate enormously, even on an hourly basis, and don't reflect the total iron stores. They only tell what is in the blood at the time of the test."

Other important changes include conclusions and recommendations from pathologists that are standardised and useful to a doctor's management of the patient.

"We are basically saying to doctors that these are the conclusions and recommendations from your expert pathologist," says Dr Flecknoe-Brown.

These expert conclusions and recommendations, and a standardised structured reporting format, will add clarity to the way iron studies are reported and interpreted. Think of it as moving from the old system of analogue, which often had static clouding the picture, to the digital age which always seems to deliver a clear picture. Once everyone moves to the new system they won't remember ever having to adjust an aerial to reduce the static! The picture will just be clearer.

[1] Iron Studies Standardised Reporting Protocol can be found at: <http://www.rcpa.edu.au/Publications/IRONSTUDIES.htm>

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Current coronavirus outbreak source is still a mystery



The current outbreak of the novel coronavirus (nCoV) in the Middle East has the World Health Organization (WHO) on alert and pathologists and others wondering whether the world is on the verge of another epidemic similar to the Severe Acute Respiratory Syndrome (SARS) outbreak 10 years ago.

Officially called the Middle East Respiratory Syndrome coronavirus (MERS-CoV), its toll so far^[1] is 64 laboratory-confirmed cases including 38 deaths. While there is no evidence of sustained human-to-human spread of this virus, the mode of transmission or the source of the virus have not yet been determined.

“The outbreak of MERS-CoV is centered around the Middle East, especially in the Arabian Peninsula,” explains Associate Professor Lance Jennings, clinical virologist at Canterbury Health Laboratories in Christchurch. “Cases outside the Middle East have all been in people who have traveled to the region or have been in contact with travelers returning from the Middle East.”

A/Prof Jennings says that all confirmed MERS-CoV cases have had respiratory disease, mostly pneumonia requiring hospitalisation. The age range of cases has been 24-94 years, and mostly males. However, people may not present with just respiratory symptoms, as a number of the cases have had other diseases present.

“Nose and throat swabs seem to have a low sensitivity for MERS-CoV detection, thus lower respiratory tract samples are preferred for its laboratory diagnosis. The presence of this virus in the lower respiratory tract may be one reason why it’s not easily transmitted from person to person,” he explains.

A/Prof Jennings says the virus is thought to be of animal origin, possibly from the European bat, although a number of cases have had no known contact with animals. The WHO has initiated a case-controlled study to look at potential risk factors and to try and establish a common thread to work out where this virus is circulating. A/Prof Jennings says there may be an intermediary involved between the bat and infected people, but it has not been identified yet. Possible intermediaries include cats, sheep and camels, but these are speculation at this stage.

“All clusters of reported infections have been among family contacts or in health care facilities. There was one cluster of cases in a hospital in the Eastern Province of Saudi Arabia that included 22 confirmed cases of MERS-CoV and 10 deaths. The infection of two health care workers reminds us of one of the important lessons from SARS which is adhering to infection control and prevention guidelines.”

There is an urgent need to find the source of this virus so that infections can be prevented. In the meantime, A/Prof Jennings says everyone, especially clinicians, should be on the alert for travelers with severe acute respiratory infection (SARI) returning from countries where the MERS-CoV has been reported.

[*] As at 17 June 2013

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Hypothermia deaths don't just happen in cold climates



If you think people only die from hypothermia in bitterly cold weather, then think again. People can and do die from hypothermia in places with a temperate climate – such as Sydney – and not only in winter. Professor Jo Duflou, clinical director of the Department of Forensic Medicine in Sydney, says they see cases in autumn and spring as well, although summer deaths are rare.

Hypothermia occurs when the core body temperature is 35°C or less. While deaths from hypothermia are typically associated with homeless people, those dependent on drugs and the elderly who live in cold climates, Prof Duflou says they can happen anywhere.

“I presented a paper^[1] at a conference in San Antonio in the United States on hypothermia fatalities in a temperate climate,” he explains. “At the end of the talk, a forensic pathologist who works in America said he sees more cases of hypothermia-related deaths since working in sunny Florida than when he

practiced in Chicago where it gets bitterly cold.”

Prof Duflou says death from hypothermia is an important health problem. In Australia and New Zealand there are people who are living at home alone, many of them single and elderly, who may be socially disadvantaged. This might mean they have poorly insulated homes or they can't afford heating, and this group, and not the homeless or drug dependent, is the most at risk of dying from hypothermia in temperate climates.

“There are a number of factors that contribute to hypothermia such as a person's age, conditions such as mental illness, dementia or hypothyroidism, the temperature and the amount of clothing they are wearing.”

In fact, clothing is one of the mysteries of hypothermia-related deaths because many people are found either naked or semi-naked despite dying from being too cold.

“This is known as paradoxical undressing. It occurs because as the person's body temperature lowers they actually start to feel warm,” he explains. “This is because their arteries become wider to increase blood flow, called vasodilation, and as they start to feel warmer as a result of this vasodilation they start to remove their clothes.”

Prof Duflou says there are often a number of signs that a person may have died from hypothermia including:

- a bizarre death scene that doesn't make sense such as a ransacked apartment with no evidence of a break in, or a person found naked in a cupboard, or a person found naked in a tree with their clothes folded neatly at the base of the tree
- a naked or semi naked body when it's obviously cold
- red discolouration on the knees
- black spots in the stomach known as Wischnewski ulcers
- bleeding into the pancreas.

Prof Duflou says he suspects cases of fatal hypothermia are under reported because it is normally elderly people who succumb to it, not all death scenes are typical and not everyone who performs autopsies may be aware of hypothermia-related deaths in warmer weather. In fact, he says once his paper on hypothermia in a temperate climate was published in 2008, there was an increased incidence of reports in Sydney of deaths from hypothermia.

“The take home message is that hypothermia is an important public health problem with mostly elderly people living alone at risk. Getting cold is dangerous and it's not only related to the temperature. It's also related to factors such as wind movement, how damp the environment is and how vulnerable the person is. We all need to be aware how dangerous hypothermia can be, even in temperate climates.”

[1] Lim C, Duflou J. Hypothermia fatalities in a temperate climate: Sydney, Australia. *Pathology*; 2008 Jan;40(1):46-51.

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