



PathWay

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA



Issue #014

MAY 2012 | Published by RCPA

In This Issue

- Pathology results will miss this year's eHealth debut
- Stem cells are more infamous than understood
- Pathologists can make "rash" decisions too!
- Pathologists have complex lymphoma diagnosis covered

Interesting Facts

1978

The year stem cells were discovered in human cord blood

1996

The year the first mammal called Dolly the sheep was cloned from an adult (somatic) cell in Scotland

Welcome to the May edition of ePathWay

It's back to basics month with three articles covering some fundamental information about stem cells, lymphoma and eczema and psoriasis. It has been said that medicine IS pathology so check out the RCPA website (www.rcpa.edu.au) to learn more about it. After all, if pathology applies to stem cells, lymphoma and skin complaints, then it's a discipline worth knowing more about because it affects almost everyone at some point.

While we're going back to basics, it is also a good time to define what pathologists do. They are specialist medical practitioners who study the cause of disease and the ways in which diseases affect our bodies by examining changes in the tissues and in blood and other body fluids. Some of these changes show the potential to develop a disease, while others show its presence, cause or severity or monitor its progress or the effects of treatment.

Pathologists are also interested in patient safety. This is one reason why the new eHealth initiative, which is making its debut on July 1, won't include pathology results just yet. You can read about the reason for this in this month's edition!

We welcome your feedback about the stories covered in ePathWay, and hope you find it an invaluable way of being kept up to date about pathology in Australasia.

Pathology results will miss this year's eHealth debut



The long-anticipated eHealth initiative will make its debut on July 1 this year, and it's been a long journey to date. But the journey's not over yet, especially for pathology which won't be included in this year's eHealth rollout. It's not a case of omitting pathology from eHealth, but more a case of advocates such as the Royal College of Pathologists of Australasia (RCPA) ensuring that pathology results are uploaded and viewed in the safest possible way.

1998

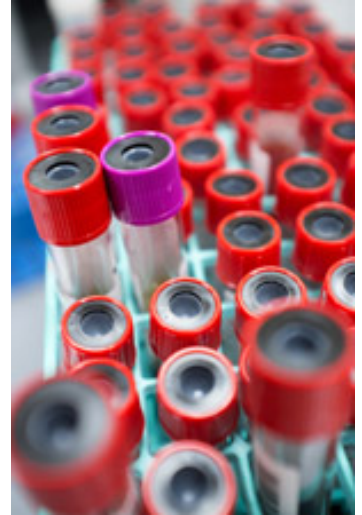
The year human embryonic stem cells were discovered

Sources: Australian Stem Cell Centre and the Stem Cell Australia websites.

[read more »](#)

Stem cells are more infamous than understood

The paradox about stem cells seems to be that people know more about the moral, ethical and religious debate they electrify than they do about stem cells themselves. So it's time to go back to basics and find out what a stem cell is, and what makes them so valuable to regenerative medicine.

[read more »](#)

Important Message



has an important message for you. [Click to see the message!](#)

Suggest to a friend

Know someone who might be interested in this website? Why not [suggest the website](#) to them.

Previous Editions

Did you miss something from last month? You can view our [previous editions](#) at any time.

Subscribe Now!

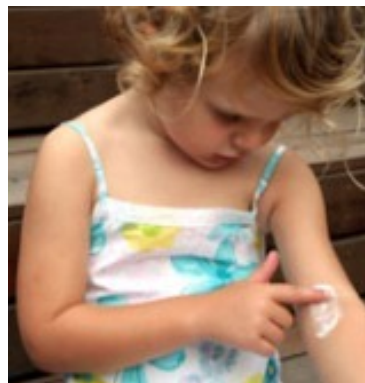
Subscription is easy! Simply fill in our [subscription form](#).

Links

[RCPA Manual](#)

[LabTest Online](#)

Pathologists can make “rash” decisions too!



Telling the difference between eczema and psoriasis can even baffle the experts. It often takes a specialist such as a Dermatologist to tell them apart, who may then call on the services of an Anatomical Pathologist to diagnose borderline cases. And when it comes to the 'eczema versus psoriasis' quandary, their knowledge and skills can be invaluable.

[read more »](#)

Pathologists have complex lymphoma diagnosis covered

Lymphomas are well known but complex cancers arising from the cells of the immune system. Associate Professor Rob Lindeman, Pathologist and Clinical Haematologist at the Prince of Wales Hospital in Sydney, describes them as a group of disorders with



widely differing clinical behaviour rather than just a single disease.



[read more »](#)

Copyright © 2012 The Royal College of Pathologists of Australasia

RCPA - Durham Hall - 207 Albion St Surry Hills NSW 2010 AUSTRALIA | (+61) 2 8356 5858 | www.rcpa.edu.au

[Privacy Policy](#) | [Legal](#) | [Disclaimer](#)

[Unsubscribe](#)



PathWay

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA



MAY 2012 | Published by RCPA

Issue #014

Pathology results will miss this year's eHealth debut



The long-anticipated eHealth initiative will make its debut on July 1 this year, and it's been a long journey to date. But the journey's not over yet, especially for pathology which won't be included in this year's eHealth rollout. It's not a case of omitting pathology from eHealth, but more a case of advocates such as the Royal College of Pathologists of Australasia (RCPA) ensuring that pathology results are uploaded and viewed in the safest possible way.

"The RCPA have been working cooperatively with the National E-Health Transition Authority (NeHTA) on this project," explains Dr Bronwen Ross, Deputy CEO of the RCPA. "However, patient safety is paramount so we have been making sure pathology results will be uploaded into eHealth records in a way that ensures their complexity and context are not lost in the transition."

The official title of this new eHealth patient record is the National Electronic Health Record System (NEHRS), although older information may refer to it as a Personally Controlled Electronic Health Record (PCEHR). Whatever its name, Professor Michael Legg from the Centre for Health Informatics and eHealth Research at the University of Wollongong says the roll out will be slow with the initial benefits mostly favouring people who are outside of their normal caring group of health practitioners.

"There's a good example of this in action on the eHealth information website¹ which gives the example of Kelvin's eHealth journey to demonstrate its usefulness in this situation."

Prof Legg, who is also a Fellow of the Faculty of Science of the RCPA, says eHealth is an important initiative but he also shares Dr Ross' concerns about the risks of uploading pathology results in a fragmented way.

"If you grab bits of a pathology report and cut and paste it into an eHealth record then it can lose its context, especially if there are differences in the units and reference ranges used by different laboratories."

Dr Ross says the RCPA is working on standardising certain aspects of pathology reports, but like any major project it will take time.

“Pathology results are not just a group of numbers or a commodity that can be put wherever people like,” she stresses. “There is medical analysis by a pathologist behind them and that’s one of the reasons why they must be represented in context. For example, microbiology is one area where uploading fragmented information can have serious consequences because the reports deal with different organisms and cultures as well as specific recommendations by pathologists.”

Dr Ross says a group of pathology stakeholders have agreed on a model where the results will be uploaded into the eHealth record in a PDF format so the report is viewed in full. This has the added advantage of enabling treating practitioners to view additional information such as who wrote the report as well as the laboratory’s contact details.

“We are working to a 30 June 2013 deadline for large private pathology laboratories, and a 30 June 2014 deadline for other pathology providers to have the processes in place to upload pathology results onto the NEHRS in the desired PDF format,” she explains. “Patient safety is of paramount importance to us which is why we advocated for this format of reporting pathology results.”

Did you know?

Everyone’s health records are not going to be automatically uploaded onto the National Electronic Health Record System (NEHRS) on July 1. It’s actually an ‘opt-in’ model where both treating practitioners and consumers need to register for a unique identifier. Once that process is done, the consumer must also give permission for their information to be uploaded onto their NEHRS.

¹<http://ehealthinfo.gov.au/>

A recently launched website which is informative and includes a function to register an interest in an eHealth Record is: <http://ehealth.gov.au/internet/ehealth/publishing.nsf/content/home#.T7BLonhCflo>

[« Back to Home Page](#)

Copyright © 2012 The Royal College of Pathologists of Australasia

RCPA - Durham Hall - 207 Albion St Surry Hills NSW 2010 AUSTRALIA | (+61) 2 8356 5858 | www.rcpa.edu.au

[Privacy Policy](#) | [Legal](#) | [Disclaimer](#)

[Unsubscribe](#)



PathWay

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA



MAY 2012 | Published by RCPA

Issue #014

Stem cells are more infamous than understood



The paradox about stem cells seems to be that people know more about the moral, ethical and religious debate they electrify than they do about stem cells themselves. So it's time to go back to basics and find out what a stem cell is, and what makes them so valuable to regenerative medicine.

"To understand what a stem cell is, there is one vital concept to grasp first," says Professor John Rasko*, Head of Department of Cell & Molecular Therapies at Royal Prince Alfred Hospital in Sydney. "Cells come from cells. And one cell can only ever divide into two cells, and two cells can only ever divide into four cells and so on. It's quite amazing, especially when you consider that they keep dividing and replacing themselves. For example, we make about one million red blood cells every second, and about the same amount die, and this all starts with the maths of binary division."

Binary division is also the key to the beginning of a human life. When a sperm and an egg join together they form one solitary cell known as the fertilised egg. And this one solitary cell doesn't suddenly inflate like a balloon and sprout arms, and legs and a head until it becomes a baby. This cell can only execute one type of action; divide into two cells, and then four cells, and then eight cells and so on.

Fertilised eggs are actually *totipotent* which means they have the ability to form an entire organism. Their daughter cells are akin to Embryonic Stem (ES) cells, which are referred to as *pluripotent*, because they cannot produce placental tissues but are capable of forming any type of cell in the body. After four days of cell divisions the *totipotent* stem cells become more specialised and soon give rise to Adult Stem cells.

"The name doesn't really describe them well because Adult Stem cells are simply cells which are committed to a specific organ in the body," explains Professor Rasko. "For example, some turn into liver cells, others turn into kidney cells and others turn into skin or blood cells."

Because Adult Stem cells are normally committed to a certain organ, scientists believed their destinies were set in stone. This belief kept the spotlight on ES cells for regenerative medicine simply because they might be used for any purpose in the body. Then laboratory techniques were developed that enabled fully committed Adult Stem cells (and indeed just about any cell) to be reprogrammed to enter an ES cell-like state. These are called "induced Pluripotent Stem" (iPS) cells.

"For iPS cells, we add a cocktail of four genes to a particular cell and send it back towards an embryonic form in a sort of rewinding process,"

says Professor Rasko. "This basically means that every stem cell in the body, whether it is a brain cell or a heart cell, may have the capacity to generate an individual human life!"

It's fortunate we live in the electronic age because the moral, ethical and religious debate that will probably swirl up around this concept might have consumed every tree on the planet to produce the paper to document this complex debate. And while the philosophical points are being debated, it's sobering to remember that stem cells begin with the concept that cells come from cells, and they go on to perform different functions in the body, which is simple, complex and miraculous all at the same time.

* Professor Rasko is also the Head of the Gene and Stem Cell Therapy Program at the University of Sydney's Centenary Institute.

[« Back to Home Page](#)

Copyright © 2012 The Royal College of Pathologists of Australasia

RCPA - Durham Hall - 207 Albion St Surry Hills NSW 2010 AUSTRALIA | (+61) 2 8356 5858 | www.rcpa.edu.au

[Privacy Policy](#) | [Legal](#) | [Disclaimer](#)

[Unsubscribe](#)



PathWay

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA



MAY 2012 | Published by RCPA

Issue #014

Pathologists can make “rash” decisions too!



Telling the difference between eczema and psoriasis can even baffle the experts. It often takes a specialist such as a Dermatologist to tell them apart, who may then call on the services of an Anatomical Pathologist to diagnose borderline cases. And when it comes to the 'eczema versus psoriasis' quandary, their knowledge and skills can be invaluable.

According to Dermatologist and Pathologist Dr Rachel Manifold, most cases of eczema and psoriasis are diagnosed according to physical appearance and patient history alone. It's the difficult cases where extra specialist skills of an Anatomical Pathologist are usually required.

"Eczema usually develops in the first 12 months of life and many children grow out of it by school age," she says. "Psoriasis usually develops later in life and has two peaks. The first is between 15 and 30 years of age, and the second happens after 40 years of age."

Dr Manifold says eczema can be triggered by many factors such as the change of season or exposure to animal dander, house dust mites, grasses, pollens or some foods. It has the appearance of red patches of irritated skin, and the most commonly affected areas are the face in very young children, to arms and knees when they start crawling, to the creases at the elbows and the back of the knee when they are older. It is often associated with asthma and hay fever, is very itchy, and has a familial component to it.

Psoriasis also runs in families, but it is the result of skin cells growing too quickly in response to an overreaction by the immune system. The body doesn't shed these excess skin cells, but continues to pile new forming cells on to the surface of the skin. This gives the rash a flakey, pink, silvery scale appearance.

"Psoriasis isn't as itchy as eczema, and it usually affects the knees, elbows, buttocks and scalp. The plaques are quite demarcated, and there are also changes in the finger nails such as pitting," says Dr Manifold.

Neither of these rashes is contagious, and the correct diagnosis is crucial to effectively treat them. If the physical presentation of the rash and the associated patient history follows the rulebook, then it can be a straightforward verdict, although that's not always the case.

There is the double whammy of psoriasiform eczema where the two are blended together. This condition is quite uncommon according to Dr Manifold, and difficult to diagnose. It can also be difficult to tell eczema and psoriasis apart if the rash appears on the palms of the hand or on the soles of the feet. When they are tricky to separate then a biopsy may need to be sent to an Anatomical Pathologist for interpretation.

"Doctors usually try and send these samples to an Anatomical Pathologist who has an interest in skin and has had extra training so they are able to draw on their advanced clinical knowledge," advises Dr Manifold. "They will then look at the biopsy under the microscope and interpret the changes in the skin cells to determine if it's one or the other."

Even if a person doesn't think they have a borderline case, being checked out by an expert is a good idea. Rashes are not all the same, don't respond to the same treatment and are often difficult to tell apart. With this in mind, leaving the "rash" decisions to the experts really does make a lot of sense.

[« Back to Home Page](#)

Copyright © 2012 The Royal College of Pathologists of Australasia

RCPA - Durham Hall - 207 Albion St Surry Hills NSW 2010 AUSTRALIA | (+61) 2 8356 5858 | www.rcpa.edu.au

[Privacy Policy](#) | [Legal](#) | [Disclaimer](#)

[Unsubscribe](#)



PathWay

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA



MAY 2012 | Published by RCPA

Issue #014

Pathologists have complex lymphoma diagnosis covered



Lymphomas are well known but complex cancers arising from the cells of the immune system. Associate Professor Rob Lindeman, Pathologist and Clinical Haematologist at the Prince of Wales Hospital in Sydney, describes them as a group of disorders with widely differing clinical behaviour rather than just a single disease.

"Hodgkin's disease was recorded by British physicians Thomas Hodgkin and Samuel Wilks in the early 1800s who described a progressive and fatal disease characterised by enlarged lymph nodes and a large spleen," he explains. "Non-Hodgkin's lymphomas were described later and include a large group of other tumours of the lymphoid tissue including the lymph nodes, spleen and bone marrow. Correct diagnosis of a lymphoma and its subtype is critical in planning the correct treatment for patients."

Pathologists still classify lymphomas as either Hodgkin's or Non-Hodgkin's lymphoma. Both originate from white cells called lymphocytes, although Hodgkin's lymphoma is characterised by the presence of Reed Sternberg cells.

"Anatomical Pathologists must first decide if a lymph node is cancerous or enlarged due to other causes such as an infection or an immune disease. If it is malignant they must then differentiate between Hodgkin's or Non-Hodgkin's lymphoma and then break the diagnosis down further to over 70 different sub-types of lymphoma," explains Associate Professor David Ellis, Anatomical Pathologist at the Flinders Medical Centre in Adelaide.

He says in 1960 there were only four sub-types of lymphoma identified, by 1985 there were over 15 different sub-types, in 2000 it doubled to over 30 sub-types, and there are now over 70 sub-types for pathologists to consider whenever they diagnose lymphoma.

"The complexity of lymphoma reflects the complexity of the immune system and it is also a complex diagnostic process. Pathologists need to look at a case from many different angles using different methods, and they also need to know the clinical story of the patient to get the diagnosis right."

A/Prof Ellis says all types of lymphoma differ from other forms of cancer because normal lymphocytes, which the cancer cells mimic, are already mobile in the body via the lymph system. This is why the cancer cells can spread and form lumps in many parts of the body quite early in the course of the disease in contrast to other cancers, such as bowel or stomach cancers, which derive and grow from cells fixed in a given organ.

“The word ‘lymphoma’ alone doesn’t indicate whether it is good or bad,” explains A/Prof Ellis. “People die relatively quickly from aggressive forms of this disease, although this is rare, while others can live with a more indolent form of lymphoma for decades. And then there are all the shades of grey in between.”

Lymphoma generally respond well to chemotherapy and radiotherapy. Paradoxically, the more aggressive lymphoma types may be cured, while lower grade or indolent lymphomas are observed or controlled by treatment.

A/Prof Lindeman says Hodgkin’s lymphoma is relatively common in young people, especially those in the 20 to 30 years age bracket, and has another late peak in the elderly. Non-Hodgkin’s lymphomas are the most common type of lymphoma overall. And when you consider there are about 70 sub-types again, then an accurate diagnosis is vital to ensure the correct treatment is given. That’s why it’s comforting to know that pathologists have the lymphoma diagnosis covered.

[« Back to Home Page](#)

Copyright © 2012 The Royal College of Pathologists of Australasia

RCPA - Durham Hall - 207 Albion St Surry Hills NSW 2010 AUSTRALIA | (+61) 2 8356 5858 | www.rcpa.edu.au

[Privacy Policy](#) | [Legal](#) | [Disclaimer](#)

[Unsubscribe](#)