ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

JULY 2016 | Published by RCPA

Issue #060

In This Issue

- Rare identical twin abnormalities deserve a double take
- Legionnaire's disease is only one part of the *Legionella story*
- Pathology labs are also libraries for results and samples
- Lay Committee puts pathologists and consumers at the same table

Interesting Facts

70%

The proportion medical treatment decisions that rely on pathology test results

About 100

The number of pathology tests performed every minute in Australia

Welcome to the July edition of ePathWay

Cases of parasitic twins and fetus in fetu are very rare, but a few recently reported in developing countries have prompted sensational headlines. We ducked under the hype and asked an expert to explain how these births occur.

Our other stories cover:

- Legionnaire's disease, and why there's more to the story than cooling towers.
- Why pathology laboratories are also medical libraries for results and samples.
- What pathology means to a member of our Lay Committee.

Don't forget to check the topical posts on our Facebook page including what the six most common pathology tests reveal about your health. You can also follow our CEO Dr Debra Graves (@DebraJGraves) or the College (@PathologyRCPA) on Twitter to keep up to date with pathology news.

Rare identical twin abnormalities deserve a double take

25,000

The number of skilled professionals who work in pathology in Australia

Source: Know Pathology Know Healthcare

Important Message

RCPA 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!

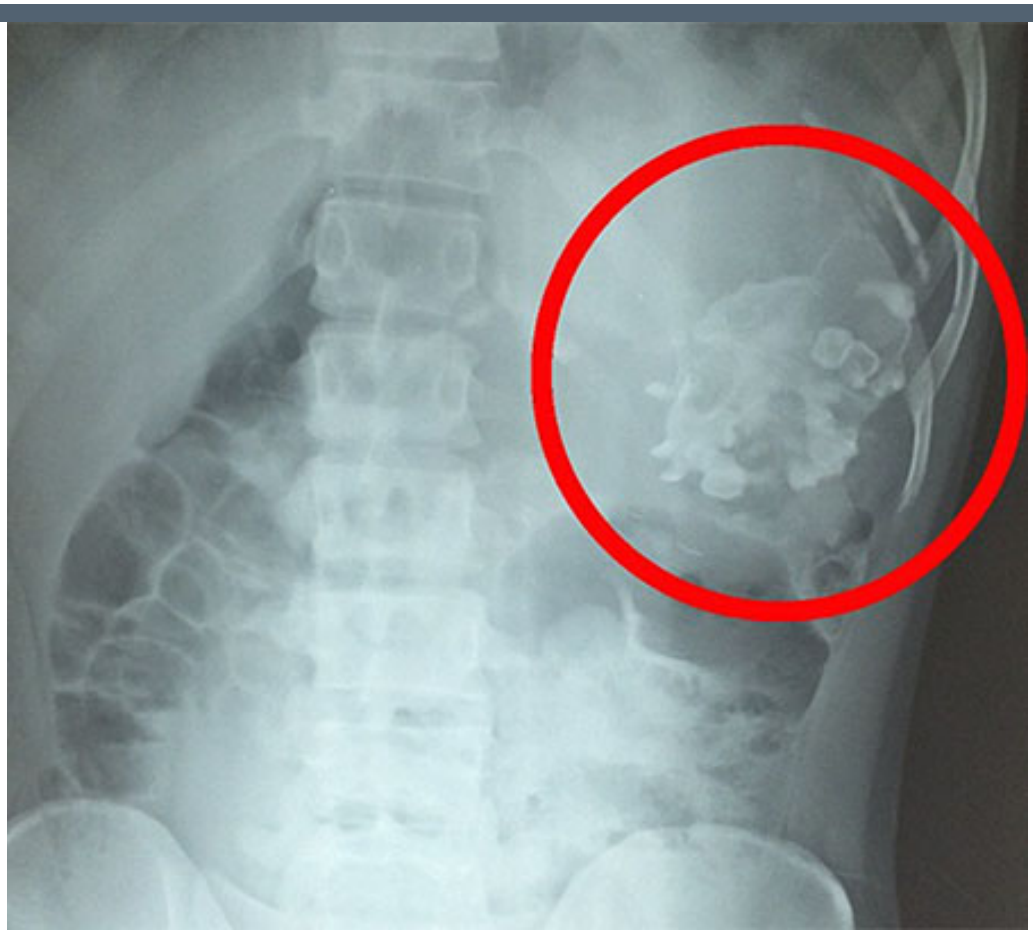
Subscription is easy! Simply fill in our subscription form.

Links

RCPA Manual

Lab Tests Online

Know Pathology Know Healthcare



Reports of parasitic twins and fetus in fetu cases may seem like science fiction, but they are very rare and very real conditions that can affect identical twins. Dr Nicole Graf, paediatric and perinatal pathologist at The Children's Hospital at Westmead in Sydney, cuts through the sensationalism and explains what these terms mean.

read more »

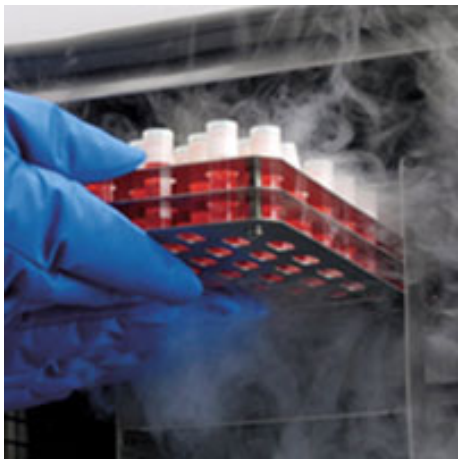
Legionnaire's disease is only one part of the *Legionella* story

Legionnaire's disease is usually linked to cooling towers, but there's more to the story than that. Numerous species of *Legionella* bacteria live in our environment, including in rivers, creeks and soil with two types are particularly harmful for humans – *Legionella pneumophila* and *Legionella longbeachae*. Both cause notifiable infections.

read more »

Pathology labs are also libraries for results and samples

Have you ever wondered how long pathology labs keep your blood sample once it has been tested? Or how long they keep your pathology results on file? Read on, the answers may surprise you.



read more »

Lay Committee puts pathologists and consumers at the same table

More than 17,500 people have signed up to the *Know Pathology Know Healthcare* website to show they value pathology. It's a big number, and it's getting bigger, so we spoke to a member of the RCPA's Lay Committee to find out what pathology means to her.

read more »

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

ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

Published by RCPA

RCPA Message

« Back to Latest Issue

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

ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

Published by RCPA

Previous Editions

2016

055 - February 2016

056 - March 2016

057 - April 2016

058 - May 2016

059 - June 2016

2015

044 - February 2015 | 045 - March 2015 | 046 - April 2015

047 - May 2015 | 048 - June 2015 | 049 - July 2015

050 - August 2015 | 051 - September 2015 | 052 - October 2015

053 - November 2015 | 054 - Dec 2015/Jan 2016

2014

033 - February 2014 | 034 - March 2014 | 035 - April 2014

036 - May 2014 | 037 - June 2014 | 038 - July 2014

039 - August 2014 | 040 - September 2014 | 041 - October 2014

042 - November 2014 | 043 - Dec 2014/Jan 2015

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

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

Published by RCPA

Subscription Form

Full Name:

Email address:

Subscribe

Unsubscription Form

Email address:

Unsubscribe

« Back to Home Page

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

ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

JULY 2016 | Published by RCPA Issue #060

Rare identical twin abnormalities deserve a double take

Reports of parasitic twins and fetus in fetu cases may seem like science fiction, but they are very rare and very real conditions that can affect identical twins. Dr Nicole Graf, paediatric and perinatal pathologist at The Children's Hospital at Westmead in Sydney, cuts through the sensationalism and explains what these terms mean.

"No one knows why abnormalities such as parasitic twins occurs, but we do know they are the result of abnormal twin formation for monozygotic or identical twins. Monozygotic twins result from a single conception which, for reasons we don't fully understand, divides into two. Two babies are usually born when the separation of cells is complete," explains Dr Graf.

"When the separation of cells is incomplete the result is conjoined or Siamese twins. The next level from this is a parasitic twin where one twin develops normally and the other is an attached remnant."

Dr Graf says a parasitic twin is born without a heart or brain, and is dependent on the other twin for viability. In some cases the twin has their parasitic twin's body parts attached to the outside of their own body.

"There are some cases where the parasitic twin may have limbs that move, however, most parasitic twins are not fully developed at all."

Dr Graf says fetus in fetu is also thought to be a variant of abnormal twinning.

"This occurs in the early stage of embryonic development when one twin's cell mass grows around and encompasses that of the other twin. The result is they encompass the body of their twin, limiting its ability to fully develop."

She says there is also a situation called TRAP (Twin Reversed Arterial Perfusion) twins.

"This is when one twin developed without a heart (acardiac twin), and receives all of its blood supply from the normal or 'pump' twin via abnormal vascular connections. This abnormal blood flow enables the lower half of the body to develop more

than the upper half, resulting in no well-formed head, brain or arms."

Getting your head around these abnormalities can be confronting, but they do deserve a double take, especially when they are not an obvious case of twinning.

"Examination by a pathologist is important to distinguish whether a nonspecific 'mass' in a baby is a teratoma (a tumour composed of a mix of tissues of different cell types) or a poorly developed twin (so-called "fetus amorphous"). If it's a teratoma, it's very important to rule out a malignancy, although most teratomas are benign in this setting," explains Dr Graf.

"To distinguish between a teratoma and a maldeveloped twin, we examine the mass for signs of polarity. For example, is there a 'head' and 'tail' end, or evidence of an axial skeleton? Sometimes there is evidence of rudimentary organ development."

She says some people can have their "twin" growing inside their body for years if there are no symptoms, or the patient has no reason to have a scan for another health issue.

"These cases are more common in developing countries where there is more limited access to medical facilities with imaging technology. In countries like Australia and New Zealand, these abnormalities are usually picked up on routine prenatal scans."

Recent parasitic twins and fetus in fetu cases in developing countries have cast these abnormalities into the public eye again, but they are very rare. When they do occur, it may be a case of the truth being stranger than fiction, but slicing through the sensationalism and understanding how they occur snaps it back into perspective.

The Children's Hospital at Westmead is a part of the Statewide Child Health Network (SCHN) in New South Wales.

« Back to Home Page

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

ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

JULY 2016 | Published by RCPA Issue #060

Legionnaire's disease is only one part of the *Legionella* story

Legionnaire's disease is usually linked to cooling towers, but there's more to the story than that. Numerous species of *Legionella* bacteria live in our environment, including in rivers, creeks and soil with two types are particularly harmful for humans – *Legionella pneumophila* and *Legionella longbeachae*. Both cause notifiable infections.

"*Legionella pneumophila* serogroup 1 causes about 55 per cent of *Legionellosis* cases," explains Dr Jenny Robson, Infectious Diseases Physician and Microbiologist at Sullivan Nicolaides Pathology in Brisbane.

"*L. pneumophila* can be present in man-made systems such as water distribution systems, cooling towers and hospital shower heads, and is particularly dangerous to people with compromised immune systems."

L. pneumophila causes Legionnaire's disease, which is a form of pneumonia. It was identified after an outbreak at an American Legionnaire's meeting in the 1970's, and its causative bacteria needs to be inhaled to cause disease.

"It particularly likes biofilm in plumbing systems that are poorly maintained and where there is a build up of organic and inorganic muck in pipes. This biofilm is colonised by different organisms such as amoebae which can harbour the Legionella bacteria," explains Dr Robson.

"Environmental changes that disrupt the biofilm can result in sudden release of massive amounts of Legionella bacteria into the surrounding water. Single amoebae contain thousands of *Legionella* organisms."

L. longbeachae has a slightly different story. It is found in organic matter such as potting mix and compost heaps, and when these are disturbed the bacteria can be breathed in. Dr Robson says *L. longbeachae* causes about 40 to 45% of *Legionellosis* cases.

"*Legionella* bacteria is everywhere, but for it to affect people it must be amplified in some way through man-made systems such as cooling towers or through disturbing potting mix," she explains.

Dr Robson says a diagnosis of *L. pneumophila* can be made through a urine antigen test that takes just 30 minutes to return a result. All *Legionella* infections can be diagnosed from culturing respiratory specimens such as sputum or bronchial washings.

"Measuring an antibody response can also diagnose infection, but generally not in a clinically relevant time frame. PCR is being used more often as well because *Legionella* is very fastidious to grow. In New Zealand, every community acquired pneumonia case is investigated with a *Legionella* PCR test and the outcome is that they are diagnosing more cases."

Dr Robson says travel-associated *Legionella* infections are also monitored in Europe.

"The country and facility or hotel where each case occurs is noted, and an outbreak is considered to be more than two cases over two years in the same venue. This is one way to make sure facilities such as hotels take action to ensure their environment is safe."

Legionella bacteria are certainly adept at making the most of man-made environments, especially *L. pneumophila*. They have been found in ice machines, nebulisers, spa baths, ornamental fountains and home birthing pools, while *L. longbeachae* sticks to organic matter such as gardening products. With so much ingenuity in terms of their choice of habitat, there's clearly more to Legionnaire's disease than cooling towers.

« Back to Home Page

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

ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

JULY 2016 | Published by RCPA Issue #060

Pathology labs are also libraries for results and samples

Have you ever wondered how long pathology labs keep your blood sample once it has been tested? Or how long they keep your pathology results on file? Read on, the answers may surprise you.

While every laboratory may have its own processes, there are minimum retention times for different types of specimens and records.

Most specimens (also known as samples) are kept for a minimum of seven days from when they arrive at the lab, or for two days after the pathology report is issued, depending on time frame is longer. There are however many exceptions to these time frames.

“For example, tissues left over from the dissection and sampling exercise at the start of the histopathology process are kept for one month, while paraffin wax embedded tissue samples, histological slides and gynaecological (cervical) cytology slides are kept for a minimum of 10 years,” explains RCPA President Dr Michael Harrison.

In contrast, urine specimens tested for infection need only be kept for at least three days from when the lab receives them. Materials for forensic and medico-legal purposes are kept according to jurisdictional requirements, or for 20 years if those requirements aren’t specified.

Dr Harrison says different types of materials are kept for different lengths of time to make sure there is a physical audit trail, and to allow more tests to be performed on the original specimen if required.

“For example, blood films that are clinically significant must be kept for at least one year, while those that are not clinically significant need only be kept for one month,” he says.

Samples and specimens aren’t the only items subject to minimum retention times. Copies of original pathology reports, or the ability to reprint the information of an original report, must be retained for seven years for adults and seven years from the age

of majority for minors (that's 25 years of age). The exception is genetic test results where the retention time for all reports is 100 years.

"Pathology results form an important part of the medical history of a patient, and consolidating them at a pathology laboratory reduces the number of places to find them," explains Dr Harrison.

"An example is if a patient switches to a new doctor or moves to another state, and their medical file didn't follow them, then their pathology records are stored at the pathology lab and able to be retrieved. In a way pathology laboratories act as medical libraries for results and samples."

For more information on retention times for specimens refer to the NPAAC Guidelines.

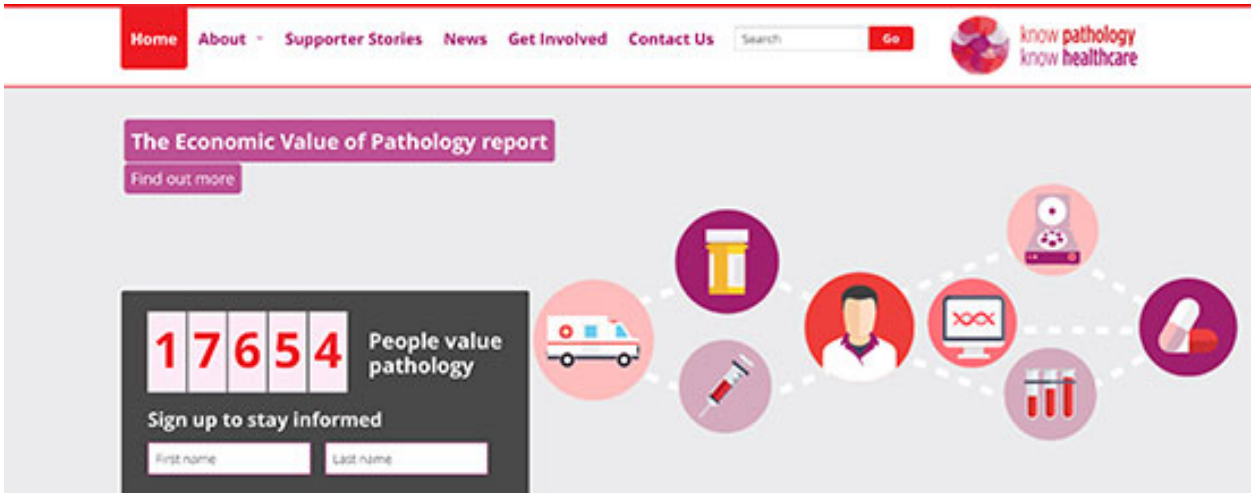
« Back to Home Page

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

ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

JULY 2016 | Published by RCPA Issue #060

Lay Committee puts pathologists and consumers at the same table



More than 17,500 people have signed up to the *Know Pathology Know Healthcare* website to show they value pathology. It's a big number, and it's getting bigger, so we spoke to a member of the RCPA's Lay Committee to find out what pathology means to her.

"Pathology is very important since it gives us a good indicator and concrete markers of health. It's also about preventive health, not just disease. However, I think we take pathology for granted because of the high standard of our pathology service," explains Ms Janney Wale, RCPA Lay Committee member.

Ms Wale says pathology tests can confirm a diagnosis, monitor health conditions and provide important information about health. However, she said too many people have a blood test without thinking of the broad number of tests that can be performed on that sample.

"I would like people to look carefully at their pathology tests and understand what is being requested and why. Pathology tests are also important for peace of mind and for understanding your state of health. Even if the tests are normal, it's still important to know the results."

Ms Wale is an advocate for consumers having access to their pathology test results, and is able to discuss this view with pathologists on the Lay Committee.

"The Lay Committee gives pathologists and consumers the opportunity to get together and talk about a number of issues. This engagement is very important because consumers mostly only interact with pathology collection staff when they need a pathology test," she explains.

The Lay Committee convenes three times a year. It consists of five consumers, five pathologists and one ex-officio pathologist.

« Back to Home Page

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