



AUGUST 2017 | PUBLISHED BY RCPA

ISSUE #072

IN THIS ISSUE

- The tide is turning for better lung cancer treatments
- Lung cancer is becoming a bigger target for molecular pathologists
- Lung cancer diagnosis has gone from major surgery to day procedure thanks to medical ingenuity
- New and improved structured reporting of lung cancer

INTERESTING FACTS

9,021

The estimated number of Australians who will die from lung cancer this year.

More than 1600

The number of New Zealanders who die from lung cancer every year (about 5 people every day).

1.69 million

The number of people

Welcome to the August 2017 edition of ePathWay

The focus this month is on one of the world's biggest killers – lung cancer. It's the leading cause of cancer deaths in both Australia and New Zealand, and the statistics have remained depressing year after year. For example, more people die of lung cancer in New Zealand than of breast cancer, prostate cancer and melanoma combined.

There is some good news though. That's why we've put this insidious disease under the microscope and reported on it from four angles: Surgical Pathology, Molecular Pathology, Cytology and Structured Reporting. These collectively form a picture of recent advances in diagnosis and treatment (including the 'magic bullets' targeted therapy delivers) that could turn lung cancer's bleak statistics around – but only time will tell.

As always, check in to our [Facebook](#) page, or review the latest tweets from our CEO Dr Debra Graves ([@DebraJGraves](#)) or the College ([@PathologyRCPA](#)), to keep up to date with the RCPA and new about pathology.

The tide is turning for better lung cancer treatments

globally who died from lung cancer in 2015.

Source: Cancer Australia, Lung Foundation New Zealand, World Health Organization

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](#)

[Lab Tests Online](#)

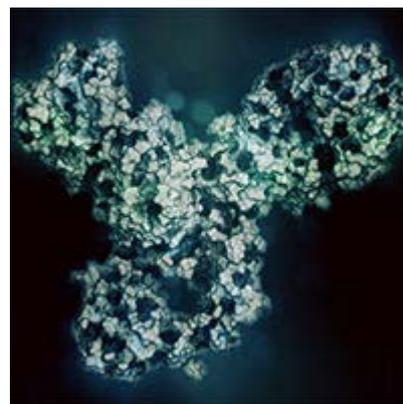


Anatomical Pathologist Bruce Latham says it used to take him less than five minutes to diagnose most lung cancer cases from a biopsy. It now takes him around half an hour. What has changed?

[read more »](#)

Lung cancer is becoming a bigger target for molecular pathologists

The stats for lung cancer are bleak. It is the leading cause of all cancer deaths in Australia and New Zealand, and the chance of surviving this disease for five years is just 16%. However, advances in lung cancer genomics have given pathologists new targets to attack, and they are taking aim with increasing accuracy to both diagnose and guide treatment of subsets of this disease.



[read more »](#)

Lung cancer diagnosis has gone from major surgery to day procedure thanks to

medical ingenuity

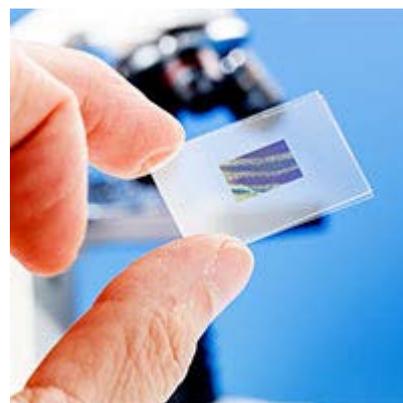
Collecting samples to diagnose most lung cancers used to require a major operation called a thoracotomy followed by about 10 days in hospital to recover. Now it's a minimally invasive day procedure. Adjunct Professor Andrew Field talked us through this quiet but important revolution for lung cancer patients.



[read more »](#)

New and improved structured reporting of lung cancer

It isn't only the diagnosis and treatment of lung cancer that has changed over the years. The way it is reported by pathologists has also been put under the microscope, and the result is a more effective process. We asked Dr Jenny Ma Wyatt, Anatomical Pathologist at SA Pathology, a few questions about this change.



[read more »](#)

Copyright © 2017 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](#)



PUBLISHED BY RCPA

Previous Editions

JULY 2017 | PUBLISHED BY RCPA **ISSUE #071**

IN THIS ISSUE

- Expert ironing out issues around measuring iron levels in the body
- Donor Questionnaires provide vital information to blood services
- Cats can share more than just their love around
- Breath and blood alcohol have a volatile relationship

Welcome to the July 2017 edition of ePathWay

Iron deficiency (ID) is a very common problem, but it's wrong to assume the cause is always benign. Serious health problems cause ID as well. The clinical presentation of the patient should therefore be considered to ensure the most appropriate test to measure iron is used. We asked an expert to explain why.

We also check out how:

- blood services squeeze the maximum benefit out of every blood donation (as a nod to last month's World Blood Donor Day)
- cats can spread more than their love around

2017

[066 - February 2017](#)

[067 - March 2017](#)

[068 - April 2017](#)

[069 - May 2017](#)

[070 - June 2017](#)

[071 - July 2017](#)

2016

[055 - February 2016](#)

[056 - March 2016](#)

[057 - April 2016](#)

[058 - May 2016](#)

[059 - June 2016](#)

[060 - July 2016](#)

[061 - August 2016](#)

[062 - September 2016](#)

[063 - October 2016](#)

[064 - November 2016](#)

[065 - Dec 2016/Jan 2017](#)

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](#)

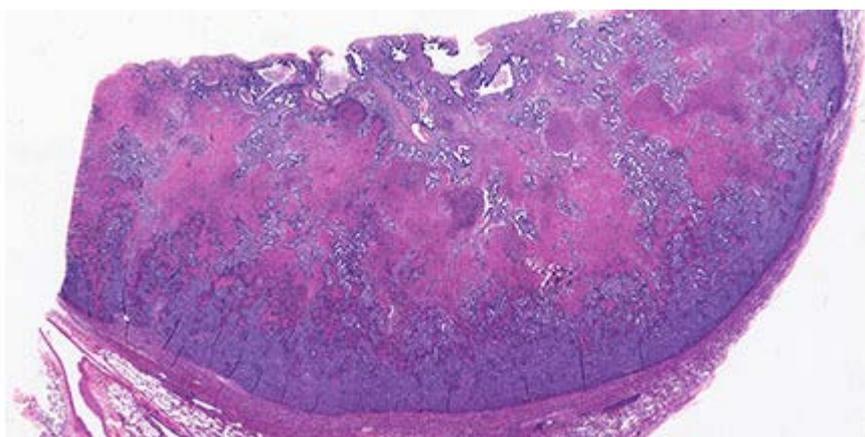
Copyright © 2017 The Royal College of Pathologists of Australasia

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

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

[Unsubscribe](#)

The tide is turning for better lung cancer treatments



Anatomical Pathologist Bruce Latham says it used to take him less than five minutes to diagnose most lung cancer cases from a biopsy. It now takes him around half an hour. What has changed?

“Historically the most important decision for a pathologist was the crucial distinction between small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC) because it defines patients with completely different clinical tumour behaviour and management. Within NSCLC, important clinical reasons to separate squamous cell carcinoma from adenocarcinoma and other histologic types did not exist. Now they do,” he explained.

These clinical reasons are the advent of genomics, targeted therapy and immunotherapy, which require further classification of the tumour and testing of the cancer tissue. Dr Latham said they also brought about another change for pathologists.

“We are now asked to do more with less. A lung biopsy is typically very small, but we now need to find out more information from it. This takes extra time.”

He said three clinical observations in patients with advanced lung cancer provided a reason for pathologists to change their practice and distinguish adenocarcinoma from squamous cell carcinoma, and to look for particular mutations. These are:

1. Patients with advanced lung cancer treated with a particular type of chemotherapy agent are at increased risk for life-threatening haemorrhage if they have squamous cell carcinoma.

2. Patients with adenocarcinoma or a NSCLC type that is not squamous cell carcinoma respond significantly better to targeted therapy than those with squamous cell carcinoma.
3. The epidermal growth factor receptor (EGFR) mutation is strongly associated with a diagnosis of adenocarcinoma. Patients with advanced NSCLC and EGFR mutation have a better outcome and response to targeted therapy as a first-line therapy, whereas patients without EGFR mutations seem to have a better outcome with chemotherapy.

Dr Latham said apart from new therapies available to treat lung cancer, another huge step forward is the introduction of [Multidisciplinary Case Conferences](#) (MDCCs).

“These are as important as the new therapies for patient outcomes. In the past the pathologist produced a report, the oncologist read it and then determined the treatment without much consultation. Now a team of specialists such as pathologists, radiologists, oncologists, chest physicians and thoracic surgeons review each case as a team to work out the best treatment for each patient.”

The tide has changed for lung cancer in terms of increased treatment options, but Dr Latham said one fact remains the same. Ninety per cent of all cases of lung cancer are due to smoking.

“We are not winning with lung cancer. It is the major cause of cancer death in both men and women in industrialised countries. Even if people quit smoking, their risk decreases but it never returns to baseline. Improved death rates may follow from early detection if we can find a suitable screening tool, better classification of tumour types, new and novel treatments, and a reduction in smoking rates.”

Dr Latham is an Anatomical Pathologist at PathWest Laboratory in Perth. He was also interviewed about lung cancer for the [February 2013](#) edition of ePathWay.

You are welcome to circulate this article to your contacts, share it on your social media platforms and forward it to any relevant contributors and experts for them to share and post on their websites. If you do reproduce this article in any such fashion you must include the following credit:

This article appeared in the August 2017 Edition of ePathWay which is an online magazine produced by the Royal College of Pathologists of Australasia (<http://www.rcpa.edu.au/Library/Publications/ePathway>).

[« Back to Home Page](#)

Copyright © 2017 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](#)

She says all lung adenocarcinomas should be tested to see if they have a targetable mutation.

There is also hope for a broader population of lung cancer patients courtesy of advances in immunotherapy.

“Immunotherapy for lung cancer is hugely promising and the type of patients who are more likely to benefit from this type of treatment is still being worked out,” explains A/Prof Cooper.

The aim of immunotherapy is to overcome the mechanism the tumour uses to dampen the body’s immune response to it. Immunotherapy agents block this mechanism, enabling the patient’s own immune system to fight the cancer.

“It’s not a mutation we are targeting, but we are profiling a tumour and looking for a molecule, which in this case is the protein programmed death-ligand 1(PD-L1). This is a type of protein that plays a major role in suppressing the immune system. The immunohistochemical test for this protein is performed on the lung tissue biopsy by an anatomical pathologist.”

The stats on lung cancer are grim, and this is mostly attributed to it being diagnosed when it’s quite advanced. The rise of these new approaches to diagnose, molecularly characterise and treat lung cancer may help to turn these stats around, but only time will tell.

Lung cancer was covered in the [February 2013](#) edition of ePathWay.

You are welcome to circulate this article to your contacts, share it on your social media platforms and forward it to any relevant contributors and experts for them to share and post on their websites. If you do reproduce this article in any such fashion you must include the following credit:

This article appeared in the August 2017 Edition of ePathWay which is an online magazine produced by the Royal College of Pathologists of Australasia (<http://www.rcpa.edu.au/Library/Publications/ePathway>).

[« Back to Home Page](#)

Copyright © 2017 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](#)

Lung cancer diagnosis has gone from major surgery to day procedure thanks to medical ingenuity



Collecting samples to diagnose most lung cancers used to require a major operation called a thoracotomy followed by about 10 days in hospital to recover. Now it's a minimally invasive day procedure. Adjunct Professor Andrew Field talked us through this quiet but important revolution for lung cancer patients.

"We have been able to obtain sputum and bronchial washings, where cells are taken from the inside of the airways through a flexible tube called a bronchoscope, for a long time. But it is more difficult to access lesions that aren't inside the bronchi (air passages to and within the lungs), especially when they're in the central part of the chest," he explained.

The difficulty is mostly due to this location. The lungs are not only formidably protected by the rib cage (also known as the thoracic cage), but they are geographically close to the heart and great vessels as well.

"The only way to access the lungs in the past was for the patient to have a thoracotomy. This involves a surgeon cutting through the chest wall and spreading the ribs to reach the lungs. It is a major operation, and sometimes it wasn't of great benefit to the patient if we then found in many cases that they had inoperable lung cancer, especially when there were fewer treatment options available," A/Prof Field explained.

There had to be a better way.

“Fine needle aspiration (FNA) biopsy cytology was pioneered in Scandinavia, particularly at the Karolinska and Malmo Hospitals and in New York, in the late 1950s and 1960s. It was then put into practice in Australia and New Zealand from the late 1960s. A Swedish cytopathologist named Svante Orell, who had emigrated from Stockholm to Australia, was one of the main drivers and teachers in this development,” said A/Prof Field.

“FNA involves inserting a very fine needle - smaller than those used to draw blood from a vein - directly through the skin into any lesion that can be palpated or seen on an ultrasound. These needles can also be guided through the skin and chest wall into the lung via a CT scan,” he explained.

“Once the needle reaches the nodule in the lung, the needle collects the cells which can be aspirated or sucked up through it and then pushed out and smeared onto glass slides. These are stained and examined by a specialist cytopathologist who then determines if the patient has cancer. The cells can also be clotted together in a cell block for further highly sophisticated immunohistochemical and molecular testing to decide on ‘magic bullet’ treatment.”

A/Prof Field said FNA cytology through the chest wall was a huge step forward because it was a less invasive procedure than a thoracotomy, but it has potential complications such as allowing air into the pleural cavity which is a dangerous situation called pneumothorax. It is also not an option for tumours deep in the central chest.

There had to be an even better way.

“Endobronchial Ultrasound Bronchoscopy (EBUS) was introduced in the late 1990s. This is a flexible scope with a camera on the end that is inserted through the mouth and down the major airways into the lungs. It enables us to see the lining of the airways. There is also a small ultrasound probe at the end of the scope. The probe can be placed against the bronchial wall to see lesions in the lung and lymph nodes next to the bronchi. The bronchoscopist can then take a biopsy of anything that looks like a cancer in the lung, or of anything suspicious in the lymph glands, using a needle that is introduced down the scope and into the tip of the bronchoscope. It is then passed through the wall of the bronchus to perform a transbronchial fine needle aspiration biopsy (TBNA),” said A/Prof Field.

He said cytopathologists or cytotechnologists are present in the endoscopy room during the EBUS procedure. They perform a rapid onsite evaluation (ROSE) of the material on the slides to make sure enough material is collected, and to prepare the material for all of the specialised tests.

“Further analysis also happens at the laboratory where all the cytology slides of the lung cancer itself and the lymph nodes, which are all individually biopsied, are viewed by the cytopathologist. If lung cancer is diagnosed then a cell block fixed in formalin and embedded in paraffin can be used to further type the lung cancer and to then perform molecular testing for gene mutations that will inform treatment decisions.

“If there are not enough cells collected to make the cell block, then the pathology department at St Vincent’s Hospital uses a new technique to scrape the cells off the cytology slides, and these are then used for the molecular testing. In many cases, these scraped cells provide better DNA for this purpose because they are whole cells smeared on the glass slides.”

A/Prof Field said if the cancer has spread to the sampled lymph nodes this changes the ‘stage’ of the cancer, and will guide the clinicians to go ahead with surgery, or if the cancer has spread too far, to use radiotherapy and chemotherapy alone. If the pathology testing shows the cancer has one of the newly discovered specific molecular changes, then one of the new specific drugs can be used in the treatment.

Thoracotomy and removal of a lung cancer can be curative in lung cancers that have not spread, but A/Prof Field said FNA directed by EBUS allows most patients to receive their initial diagnosis without having to undergo a thoracotomy.

Diagnosing and staging lung cancer from one minimally invasive EBUS day-only procedure is certainly a far cry from using a thoracotomy to obtain the same information.

When it's teamed with genomics, targeted therapies and immunotherapy, lung cancer patients are certainly benefiting from rapid diagnosis informing better treatment options, and from the determination to always find a better way.

A/Prof Field is a specialist cytopathologist at St Vincent's Hospital Sydney, President-elect of the International Academy of Cytology, and Adjunct Professor at Notre Dame University Medical School in Sydney.

You are welcome to circulate this article to your contacts, share it on your social media platforms and forward it to any relevant contributors and experts for them to share and post on their websites. If you do reproduce this article in any such fashion you must include the following credit:

This article appeared in the August 2017 Edition of ePathWay which is an online magazine produced by the Royal College of Pathologists of Australasia (<http://www.rcpa.edu.au/Library/Publications/ePathway>).

[« Back to Home Page](#)

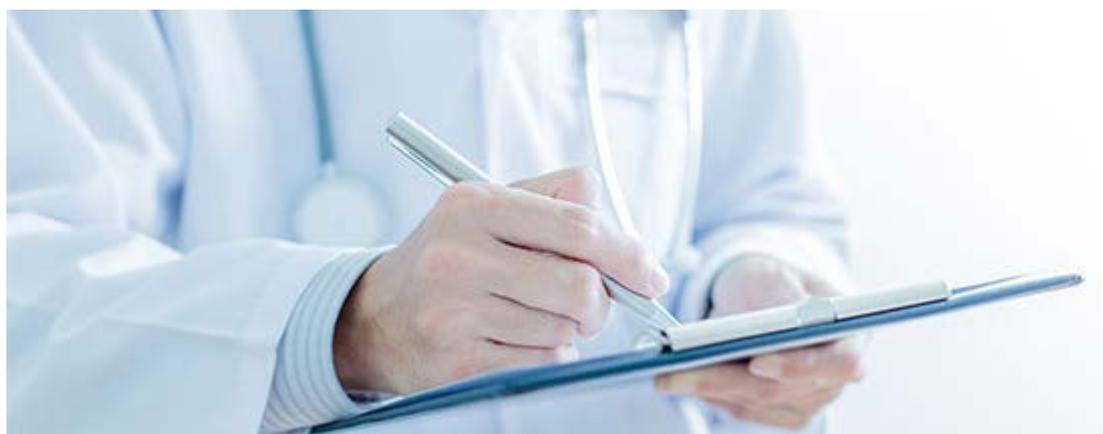
Copyright © 2017 The Royal College of Pathologists of Australasia

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

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

[Unsubscribe](#)

New and improved structured reporting of lung cancer



It isn't only the diagnosis and treatment of lung cancer that has changed over the years. The way it is reported by pathologists has also been put under the microscope, and the result is a more effective process. We asked Dr Jenny Ma Wyatt, Anatomical Pathologist at SA Pathology, a few questions about this change.

When was structured reporting for lung cancer developed and why?

In June 2007, a National Round Table was held to discuss the use of structured reporting of cancer throughout Australia. All who were present at the Round Table agreed that structured reporting of cancer cases in anatomical pathology and haematology is likely to contribute to better cancer control through improvements in:

- (1) clinical management and treatment planning
- (2) cancer notification, registration and aggregated analyses
- (3) research.

The Cancer Institute NSW secured funding in February 2008 from the then Department of Health and Ageing (Quality Use of Pathology Program) to work with the RCPA and Cancer Australia to develop six initial reporting protocols (lung, melanoma, breast, colorectal, lymphoma and prostate) and a framework to guide development of the protocols, in partnership with national clinician and pathologist organisations. The protocols contain guidelines for the preparation of structured reports for the specimens of cancers.

The first edition of the Lung Cancer protocol was published in February 2010. It was

developed by an expert committee that included pathologists, surgeons and oncologists. I have been the Chair and lead author of the protocol since that time.

Why is a structured report useful?

An anatomical pathology report contains information, including the diagnosis, that a clinician uses to plan their patient's treatment. When the report is written in prose form, it takes time for the clinician to go through it and find the points that are particularly important for each individual case. In a structured report, the information is set out in a systematic manner in point form under headings so that the clinician can access the required information more readily. A structured report also helps to ensure all the important information is included in the report. In other words, all the important information is included in a readily accessible format.

How has structured reporting changed the diagnosis and management of lung cancer?

Lung cancer resection specimens are now usually reported in a structured reporting format. By improving the completeness and usability of pathology reports for clinicians, structured reporting has contributed to better cancer control through improvements in clinical management and treatment planning.

How is new evidence related to lung cancer integrated into the reporting protocol?

The protocol is updated with new editions that incorporate new evidence. The second edition was published in 2013, and we will be doing the third edition in the very near future.

You are welcome to circulate this article to your contacts, share it on your social media platforms and forward it to any relevant contributors and experts for them to share and post on their websites. If you do reproduce this article in any such fashion you must include the following credit:

This article appeared in the August 2017 Edition of ePathWay which is an online magazine produced by the Royal College of Pathologists of Australasia (<http://www.rcpa.edu.au/Library/Publications/ePathway>).

[« Back to Home Page](#)

Copyright © 2017 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](#)