ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

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Welcome to the September issue of ePathWay

ePathway is an e-magazine designed for anyone interested in their health and wellbeing and the integral role pathology plays in the diagnosis, treatment and management of diseases.

This month's issue of *ePathway* looks at the following:

- Are we losing the global fight against measles?
- From sheep-to-human transfusions to where we are today: The history of blood transfusion.
- Is thyroid cancer being overtreated?
- Diagnosing and treating the most common cancer in men.

Remember to follow us on Facebook (@TheRoyalCollegeofPathologistsofAustralasia), Twitter (@PathologyRCPA) or on Instagram (@the_rcpa). CEO, Dr Debra Graves can be followed on Twitter too (@DebraJGraves).

Are we losing the global fight against measles?

Source:

[1] http://www.euro.who.int/en/media-centre/sections/press-releases/2019/european-region-loses-ground-in-effort-to-eliminate-measles

[2] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6139855/

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LINKS

According to the WHO, the countries of Albania, Czechia, Greece and the United Kingdom have all lost their measles eradication status. This, along with the current outbreak in New Zealand, is a serious cause for concern and raises questions over whether we are losing the global fight against measles. Doctor Vikram Vaska explains how this could be happening despite the availability of a safe and effective vaccine.

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From the first sheep-to-human transfusion to where we are today: The history of blood transfusion.

Once, the most common use for a blood transfusion was to alter the mental state of a patient, and the first successful transfusion to a human actually involved blood from a lamb! Learn more about the fascinating history of blood transfusion.

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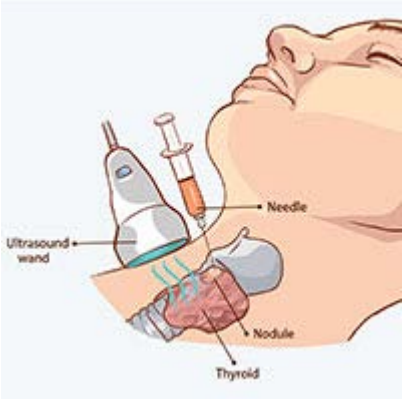
Is thyroid cancer being overtreated?

Although the incidence of thyroid cancer has been increasing steadily in recent years, the mortality rate for the disease has not changed. This suggests that thyroid cancer may be over-diagnosed and possibly over-treated, a statement which Associate Professor Clifton-Bligh explains should be used with caution.



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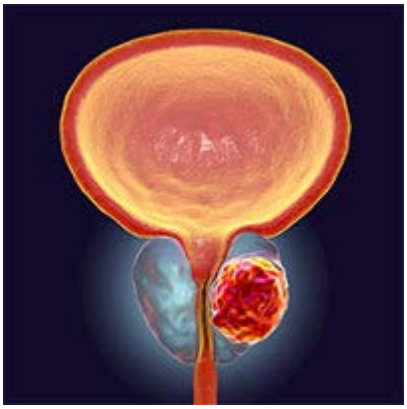
Diagnosing and treating the most common cancer in men.

Whilst there are two common tests used to look for prostate cancer, diagnosis can only be confirmed by a biopsy. We speak to Associate Professor Ken Sikaris to learn more about the processes involved in diagnosing and treating prostate cancer.



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Are we losing the global fight against measles?

On 29 August 2019, the World Health Organisation (WHO) reported that, following several years of steady progress toward elimination of measles in the WHO European Region, the number of countries having achieved or sustained elimination of the disease has declined.[1] Closer to home, a measles outbreak in New Zealand is also causing serious concern, with 1,131 cases confirmed between 1 January 2019 and 9 September 2019. We spoke with Doctor Vikram Vaska, Consultant Microbiologist at Mater Pathology, to discuss how this may have happened and what it could mean for the future.

“The WHO certifies a country's measles status based on data collected and reviewed by experts. The term ‘eradication’ indicates that measles is not circulating in a country and also that any spread of the disease into the community from imported cases can be controlled. Measles remains one of the leading causes of illness and death among young children globally, despite the availability of a safe and effective vaccine. Therefore, re-establishment of measles transmission is a serious concern.

“Measles is an acute viral infection that typically causes fever, cough and other respiratory symptoms followed by a widespread rash. It is spread by respiratory secretions - including by airborne spread of infectious particles. It is highly infectious and non-immune persons who have close contact with an infectious case will almost always become infected. Even previously healthy persons can become severely unwell and require hospital treatment. Complications in some of those infected with measles include pneumonia and encephalitis. Deaths are noted to occur around the world in groups such as malnourished children but also occasionally in those who are otherwise well,” said Doctor Vaska.

According to the WHO, the countries of Albania, Czechia, Greece and the United Kingdom have all lost their measles eradication status. This, along with the current measles outbreak in New Zealand highlights the importance of maintaining high measles immunisation rates.

“Measles had been eradicated in Australia and New Zealand within the last few years. However, cases can occur in travellers arriving in or returning to Australia or New Zealand from overseas, with the possibility of spread of the disease to others in the community. Where there are areas with numbers of non-immune people, measles can become re-established from cases contracted elsewhere. An increase of cases in a community leads to the possibility of serious complications, including death. It is essential that those travelling overseas check that they have been vaccinated against measles regardless of their destination. In New Zealand, the Ministry of Health is advising that unvaccinated individuals in New Zealand avoid travel to Auckland. [2]

“Preventing transmission of measles requires high vaccination coverage (>95%) to be maintained. Measles is highly infectious, and if re-established in a community, those with limited immunity are most at risk, including infants and young children too young to have received the full vaccination course. Countries with measles outbreaks in recent years have experienced a range of challenges, including a decline or stagnation in overall routine immunisation, low coverage among some groups, and immunity gaps in older people. Most cases of measles are unfortunately occurring in unvaccinated or under-vaccinated individuals,” said Dr Vaska.

In Australia, many people have had the recommended two doses of measles vaccine, and most people born in 1965 or earlier have immunity from having had the disease. To maintain Australia’s elimination status, it is critical that the high levels of vaccination with two doses of measles vaccine are continued.

References:

[1] http://www.euro.who.int/en/media-centre/sections/press-releases/2019/european-region-loses-ground-in-effort-to-eliminate-measles

[2] https://www.health.govt.nz/your-health/conditions-and-treatments/diseases-and-illnesses/measles/2019-measles-outbreak-information#travauck

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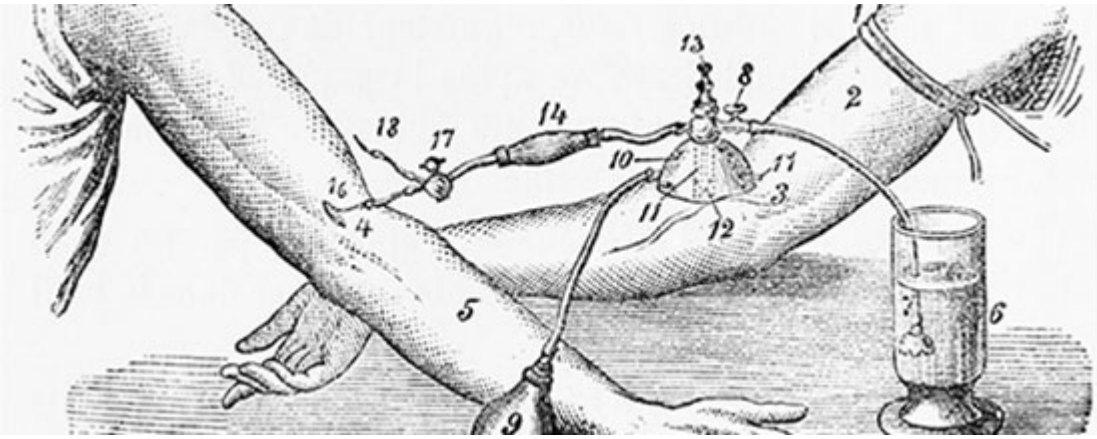
From the first sheep-to-human transfusion to where we are today: The history of blood transfusion.



One in three Australians will need blood or blood products in their lifetime[1] and in New Zealand, 29,000 patients are treated with blood or blood products each year.[2] Whilst the provision of blood and blood products is common practice in today's society, the history of blood transfusion can be dated all the way back to the 17th century.

Blood transfusion is a common, safe medical procedure in which healthy blood is given to a patient through an intravenous (IV) line that has been inserted into a blood vessel. The availability of sufficient safe blood components underpins modern health service provision and is an area of medicine which has a long history. We have come a long way from the first attempted blood transfusion to where we are now. Today we have a service to allow for blood donation, along with controls and measures to ensure a safe supply of blood. Transfusion also now comes in many forms, including red cells, platelets and plasma.

One of the most important discoveries leading to the eventual transfusion of blood was that made by English physician, William Harvey in 1613 when he discovered the circulation of blood. He identified that blood flows in one direction, disproving the widely accepted theory that blood moved forwards and backwards in the vessels, similar to the tides of the sea. The first blood transfusions were also attempted around this time, although they were often unsuccessful and fatal in humans.

The first recorded successful blood transfusion took place in 1665 when British physician, Richard Lower bled a dog almost to death, reviving it moments later by

transfusing blood from another dog via a tied artery. It was not long after, in 1667, that the first successful blood transfusion involving a human took place, when physician Jean-Baptiste Denis gave a feverish young man approximately 12 ounces of blood taken from a lamb.[3] The most common uses for transfusion around this time were in attempts to alter the mental state of the patient and were performed without any practical or functioning equipment.

It wasn't until 1818 when the topic of blood transfusion resurfaced, and obstetrician James Blundell performed the first human-to-human blood transfusion on a patient who had haemorrhaged during childbirth. He noted that only human blood should be used when transfusing to other humans, and he developed an interest in transfusions for helping patients who had suffered from postpartum haemorrhage.[4]

In 1901, Austrian physician, Karl Landsteiner discovered the first three human blood groups, A, B and O, which allowed transfusion to become a safer practice by establishing the basic principles of ABO compatibility. In 1907 it was suggested that patient and donor blood should be grouped and cross matched before a blood transfusion. Shortly after, in 1908, vein to vein transfusion was discovered, paving the way for successful organ transplantation and used as a technique to treat shock victims during World War 1, in 1914. The years that followed held many milestones for blood transfusion, including the establishment of the world's first blood bank in 1932, the discovery of the Rhesus (Rh) blood group system, the introduction of screening techniques, and the implementation of standards for blood banking.

Today, just one blood donation can save three lives. In Australia and New Zealand, there is a blood supply system in place which is responsive to patient needs, built on evidence based clinical practice and ensures the blood supply is safe, secure, adequate and affordable now and in the future.[5] As blood is such a precious resource there has also been a concerted effort, both in Australia and internationally, to put governance on the use of blood to ensure donations go to the best possible use.

References:

[1] https://www.donateblood.com.au/general-statistics

[2] https://www.nzblood.co.nz/give-blood/donating/why-should-i-donate-blood/facts-about-blood-donations-in-new-zealand/

[3] https://www.britannica.com/story/the-strange-grisly-history-of-the-first-blood-transfusion

[4] https://www.healio.com/hematology-oncology/news/print/hemonc-today/%7Bc23c344b-6ab2-49af-adb0-c0d7aa8418f9%7D/early-blood-transfusions-from-concept-to-practice

[5] https://www.blood.gov.au/

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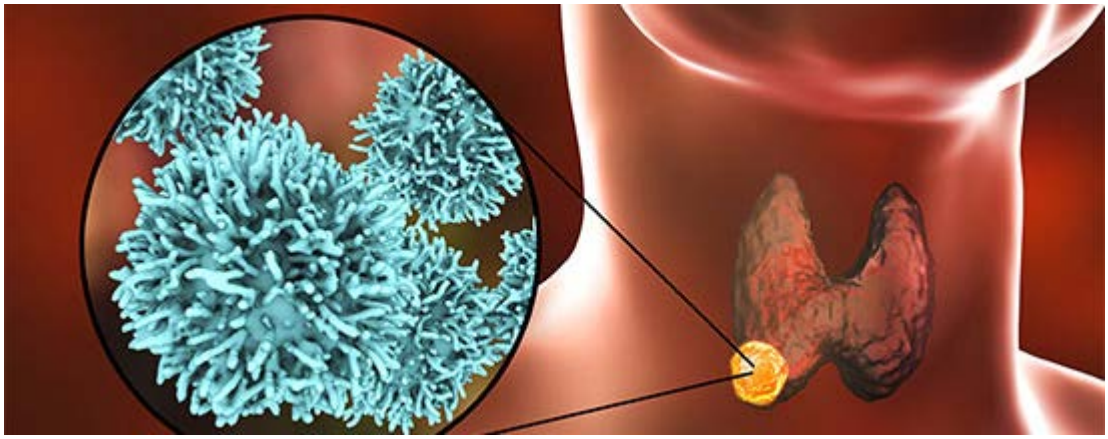
Is thyroid cancer being overtreated?



Thyroid cancer is the most common endocrine malignancy. In Australia, diagnoses of thyroid cancer have increased significantly in recent years, and between 1982 and 2017, cases of thyroid cancer more than tripled.[1] We spoke to Associate Professor Roderick Clifton-Bligh, Head of the Department of Endocrinology at Royal North Shore Hospital, to discuss why this may be, along with any new developments in the diagnosis and treatment of thyroid cancer.

“Thyroid cancer incidence has been increasing steadily in recent years, in parallel with the increasing use of neck ultrasound and detection of otherwise incidental thyroid nodules. Nevertheless, thyroid cancer mortality hasn’t changed, and this suggests that thyroid cancer may be over-diagnosed and possibly over-treated.

“In the last five years, a more systematic approach and a change to the diagnostic pathway of thyroid cancers have been introduced. There is now a widespread acceptance of the Bethesda classification which grades biopsies into six categories, from non-diagnostic through to definitely malignant. There has also been a change to ultrasound reporting to indicate which thyroid nodules require biopsy. Ten years ago, we used to biopsy most nodules greater than 1cm but now we are a lot more selective,” said A/Prof Clifton-Bligh.

Surgery is the most common treatment for thyroid cancer. This may be combined with radioactive iodine (RAI) to kill any remaining cancer cells. However, there have been moves to reduce the use of RAI in patients who are otherwise at very low risk of recurrence.[2]

“A concerted effort has been made to try and reduce the use of RAI with a move towards

a more personalised approach depending on the type and stage of the cancer. In a small proportion of cases, the thyroid cancer is not suitable or is resistant to RAI and we then use targeted chemotherapy. When RAI stops working, or in cases where the thyroid cancer is not suitable, survival is reduced. Genetic testing for thyroid cancers which are resistant to RAI is important and is extremely useful to find treatment options.

“For instance, we are currently involved in clinical trials using highly specific RET inhibitors to target thyroid cancers containing RET (rearranged during transfection) gene mutations, and the data is extremely promising. This is quite revolutionary and offers hope to people with advanced medullary thyroid cancer” said A/Prof Clifton-Bligh.

Whilst surgery is often recommended for thyroid cancer, it is becoming increasingly clear that regular follow-up (active surveillance) without surgery could be considered for some patients with low-risk cancers. Evidence has shown that for small (less than 1 cm), carefully selected, thyroid cancers there is a low rate of cancer progression. Surgery is performed later if the cancer progresses. [3]

“Active surveillance is gaining international acceptance and is used here in Australia on a case by case basis. However, not all small cancers should be watched, and we must be careful what is termed low risk. Only in experienced hands when the cancer can be confidently termed low risk should surveillance be considered.

“Whilst it is widely considered that thyroid cancer is overtreated, this runs the risk of undertreating people who actually need treatment. The modern risk-based approach is proving useful for determining the de-escalation of therapy, and this needs to be applied in centres that have adequate experience in doing this,” said A/Prof Clifton-Bligh.

References:

[1] https://www.cancercouncil.com.au/thyroid-cancer/

[2] https://www.ncbi.nlm.nih.gov/pubmed/27306093

[3] https://www.thyroid.org/patient-thyroid-information/ct-for-patients/august-2018/vol-11-issue-8-p-13-14

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Diagnosing and treating the most common cancer in men

Prostate cancer is the most common cancer of men. There are two common tests used to look for prostate cancer, a digital rectal exam and a blood test to detect prostate specific antigen (PSA), however a diagnosis can only be confirmed by a biopsy. To tie in with Blue September, an awareness month dedicated to prostate cancer, we spoke to Associate Professor Ken Sikaris, Director of Chemical Pathology, Melbourne Pathology to find out more about the disease.

“Prostate cancer develops when abnormal cells develop in the prostate. The abnormal cells grow uncontrolled and do not stop growing. They can spread within the prostate, and also to the rest of the body. Because the prostate is hidden from view, parts of it can enlarge without the patient noticing and, in the past, used to be diagnosed incidentally. The most common way that we now find prostate cancer is through screening with the Prostate-specific antigen (PSA) blood test.

“PSA is a substance made by both normal and cancer cells in the prostate gland. PSA is meant to be in semen, but a very small amount also leaks into the blood. As prostate cancer grows the PSA level in blood rises. Once men are identified to be at risk, they should be sent for radiological imaging (MRI) of the prostate and if suspect areas are found they should be biopsied to see if prostate cancer is present,” said A/Prof Sikaris.

A biopsy will usually determine whether or not a person has prostate cancer. The pathologist examines the biopsy specimens under the microscope and assigns a histological grade to assist in predicting tumour behaviour and prognosis.[1] Treatment will then depend on the stage of the disease, the location of the cancer, the severity of

symptoms and a patient's general health and wishes. For some people, treatment may not be recommended straight away – the patient may be monitored by PSA and prostate changes over time. If the tumour has not spread, a radical prostatectomy may be performed to remove the prostate and surrounding tissue. Other treatment options exist and include radiotherapy, cryotherapy, hormone therapy, chemotherapy and immunotherapy. Accurate anatomical and functional imaging of the prostate gland, and diagnosis of significant (intermediate- and high-risk) prostate cancer, is also now becoming available in Australia. [2]

"We don't understand the causes of prostate cancer. What we do know is that the rate of prostate cancer in rural China is amongst the lowest in the world, but when those Chinese workers move into the city, they have the 'Western rate' which is the highest in the world. Therefore, it seems likely that prostate cancer is mostly caused by environmental factors, however we know that around 15-20% of cases are due to inherited genetic factors," said A/Prof Sikaris.

The risk of developing or dying from prostate cancer increases strongly with age. Around 90% of new prostate cancer cases occur in men aged 55 years and over, with 99% of prostate cancer deaths occurring in this age group. Men with a first-degree relative with prostate cancer have a greater risk of the disease. [3] PSA testing recommendations will vary depending on family history.

"It is important that men know the risks of prostate cancer and from the age of 50, all men should consider routine screening. The Prostate Cancer Foundation recently released a guide for patients based on Australian and New Zealand guidelines which is a highly useful source of information, providing help to those who have questions and concerns about any matters related to prostate cancer," said A/Prof Sikaris.

To learn more, visit https://www.prostate.org.au or https://prostate.org.nz

References:

[1] http://edcan.org.au/edcan-learning-resources/case-based-learning-resources/prostate-cancer/active-treatment/staging

[2] https://www.racgp.org.au/afp/2015/august/multiparametric-mri-in-the-diagnosis-of-prostate-cancer-—-a-generational-change/

[3] http://www.cancerscreening.gov.au/internet/screening/publishing.nsf/Content/prostate-cancer-screening

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