THE SCOPE

Labtests

LABTESTS PATHOLOGY NEWS

April 2017 // Issue 23

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A few weeks back a GP called for some advice. After we had discussed the case she said 'thank you for the updates and newsletters'. This was gratifying to me – not only is it always nice to get positive feedback but also because we know that GPs and other primary care practitioners are very busy and are inundated with information from all quarters, and reading it all is a time consuming task. I have been involved in a Waitemata DHB-driven initiative to address the difficulties around effective communications between primary and secondary/tertiary care in our region, which you should be hearing about soon. Hopefully this will be useful for all stakeholders.

Recently I attended the 'Choosing Wisely – Implementation Symposium' in Wellington. The international guest speaker was Dr Wendy Levinson, a Canadian physician and Professor of Medicine (Toronto), and the chair of Choosing Wisely, Canada (http://www.choosingwiselycanada.org/). She gave two excellent presentations, and described 'choosing wisely' as the following:

1. Physician led
2. Patient focused
3. Emphasis on quality healthcare and harm prevention
4. Evidence based
5. Multi-professional (multi-disciplinary)
6. Transparent

I particularly like their 'hot dog' poster aimed at consumers of healthcare, which we have reproduced here with permission.

It is thought that up to 30% of healthcare delivered in the USA doesn't add value; and similar figures are showing up in research in many other countries including Canada (https://www.cihi.ca/en/canadians-have-more-than-1-million-potentially-unnecessary-medical-tests-and-treatments-every-year). Healthcare that doesn't add value is a failure in the provision of care, and its origins are complex and multifactorial. Some of the reasons for overuse of healthcare resource include:

1. The patient wants it or there is a perception that the patient wants it
2. It takes too much time and effort to explain to the patient that it is not necessary and potentially harmful
3. Miscommunication between primary and secondary care
4. Avoidance of complaints/being sued
5. Misaligned financial incentives
6. 'But I have always done it'
7. Systems (such as order sets) automate overuse

There were a variety of speakers including doctors, a midwife, evaluation experts, and a consumer advocate. The take-home messages that I got out of the meeting are the following:

1. This is an international movement that is gaining in importance and influence (http://blogs.bmj.com/bmj/2017/04/07/choosing-wisely-around-the-world-professionalism-as-a-force-to-reduce-unnecessary-care/)
2. Consumer engagement is vital
3. Choosing Wisely is a multi-disciplinary means of improving healthcare for all.

Information about Choosing Wisely New Zealand can be found here http://choosingwisely.org.nz/.

Dr Arlo Upton
Microbiology and Medical Director
Labtests
arlo.upton@labtests.co.nz

We have noticed an increasing trend whereby copies of laboratory results are being requested to be sent to a practice address rather than an individual doctor. Often this occurs after the patient visits an A&M or similar service. Quite a few patients do not have any particular doctor at their regular clinic but see the doctor on duty.

Labtests is in the process of setting up a generic electronic mail delivery address for each practice that will receive the copy of the results in the in box or whatever practice management system is in use. It is important that somebody in the practice remembers to check the in box and assign the results to the patient record. If your practice is requesting a copy to go to a clinic rather than an individual doctor, please give as much information as to the address as possible so we can make sure it goes to the right place.

Mike Norriss
General Manager
Labtests

mike.norriss@labtests.co.nz

Introducing Dr Dona Madola

Dr Dona Wathsala Madola
Haematologist

Labtests is delighted to welcome Dr Dona Madola to our pathology team. Dr Madola is covering for Dr Lesley Overend who is currently on maternity leave.

Dr Madola is a graduate of the University of Peradeniya, Sri Lanka. She completed her post-graduate training in general pathology at the National Cancer Institute of Sri Lanka, obtaining a Diploma in General Pathology in 2002. After further training in haematology at the National Hospital of Sri Lanka Dr Madola obtained MD (Haematology) in 2005 through the Post Graduate Institute of Medicine, Sri Lanka.

In 2010, Dr Madola moved to Australia where she continued her training in haematology at Royal Adelaide Hospital, completing her fellowship in 2012. Prior to joining Labtests Dr Madola worked at Australian Clinical Labs as a laboratory haematologist and at Australian Red Cross Blood Services (ARCBS) as a transfusion medicine specialist.

Dr Madola is a Fellow of the Royal College of Pathologists of Australasia and a member of the Sri Lanka College of Haematologists.

Haematology Referrals

It has been brought to our attention that on occasion the DHB haem-atology services are receiving referrals for haematology issues that they believe should be managed in the community. Examples include:

Mild isolated anaemia – e.g. Hb = 115
Mild thrombocytopenia – e.g. platelets = 130
High MCV

Rather than sending an e referral to the DHB services, we ask that in the first instance you read the laboratory comments appending to the results, which often suggest a differential diagnosis and subsequent investigations. However, our pathologists are limited by the lack of clinical information often provided, and sometimes it is best to telephone for further advice. We have three clinical haematologists working at Labtests:

⇒ **Dr George Chan – Tuesdays and Fridays**
⇒ **Dr Fransisca de Silva – Mondays to Fridays**
⇒ **Dr Dona Madola - Mondays to Fridays**

There is always a haematologist on call after hours for urgent matters.
We appreciate your consideration of this matter.

Arlo Upton
Medical Director / Microbiologist
Labtests / Northland Pathology

Blood cultures in general practice

Labtests receives around 2500 blood culture sets per year from general practices and private hospitals in Auckland and Northland. Positive blood cultures are uncommon at our laboratory with 3% growing pathogens, and 1% skin contaminants. The effect that these results have on patient management is uncertain, and we believe that referrers need to consider the benefits and limitations before requesting blood cultures for community patients.

Limitations

At Labtests, blood cultures positive for skin contaminants such as coagulase negative *Staphylococci* outnumber those positive for *S. aureus*, a serious pathogen. These organisms appear identical in the initial Gram stain, which can lead to unnecessary interventions including hospitalisation for patients.

There is almost no role for taking blood cultures in the community for patients that warrant referral to hospital based on clinical assessment. They can be performed in hospital if required.

Though patients may present to general practice with undifferentiated febrile illnesses, at hospital review half of patients with positive blood cultures at Labtests have gastroenteritis, pneumonia, urinary tract infections, or cholecystitis. Focused testing for these infections in the community is more sensitive, and provides more timely and relevant information than blood cultures. For febrile patients without an obvious source, in the first instance testing a patient's urine, and liver tests may be appropriate to help localise an infection.

It should be noted that POAC currently requires a blood culture to be taken before patients with pyelonephritis are eligible to receive intravenous antibiotics in the community.

Who to test

Blood cultures in the community are best reserved for the following febrile patients:

1. Those with risk factors for specific illnesses including: infective endocarditis, typhoid fever, and indwelling vascular catheters
2. Immuno-compromised patients in whom severe infections may present atypically
3. Persistently febrile patients without a focus after thorough clinical assessment and initial investigations
4. Pregnant women presenting with fever and 'flu-like symptoms

Summary

Many patients present to general practice with febrile illnesses. Focused diagnostic testing based on history and examination should be performed. Though blood cultures have a key role for diagnosis of certain conditions, outside these blood cultures are of doubtful benefit for community patients.

Dr Gary McAuliffe
Microbiologist Labtests
Phone: (09) 574 7207 // 021 0215 7069
gary.mcauliffe@labtests.co.nz

HCV Diagnostics

The past few years have seen an explosion in the development of treatment for hepatitis C virus (HCV) infection. Now HCV can be cured with a relatively short course of highly tolerable antivirals. We have come a long way from 48 weeks of interferon-based therapy with cure rates of less than 50%. Currently, PHARMAC is funding Viekera Pak ® therapy for patients with chronic genotype 1 HCV infection.

The laboratory plays a vital role in the diagnosis of HCV infection, and Labtests performs approximately 75,449 HCV antibody tests each year. However, daily we see examples of inappropriate test ordering.

Firstly, patient selection for HCV screening is important. We do not have a screening programme for HCV in New Zealand, as it would be extremely expensive, and would require resource better used elsewhere in health. Thus, screening should be targeted to those patients who have risk factors for HCV infection. These include:

1. Injectable drug use
2. Receiving a blood transfusion or organ transplant in New Zealand prior to July, 1992
3. Migration from or receiving health care in a region with high HCV prevalence
4. Time spent in prison
5. A tattoo, body piercing or alteration, e.g. scarification, performed in prison or in a country with a high prevalence of HCV
6. Unexplained history of acute hepatitis, jaundice, or abnormal liver function
7. Being born to an HCV infected mother

HCV screening should NOT be done as part of a routine STI screen; studies have identified that sexual transmission HCV is almost always limited to men who have sex with men, and use recreational drugs.

Secondly, HCV antibody is the correct screening test, not HCV RNA. Increasingly, we are seeing HCV RNA being requested on patients who are HCV antibody negative or who have never had an HCV antibody test. This is a little like doing a cardiac MRI on a patient who has never had an ECG.

Remember, any samples with new HCV antibody positivity, the laboratory arranges HCV RNA testing to determine whether or not the patient has active infection. If they have detectable HCV RNA (and so have active infection), genotyping is arranged (providing there is sufficient sample remaining). For patients diagnosed with HCV infection, referral to DHB services for a fibroscan (to assess liver damage) is required.

Dr Gary McAuliffe and I are happy to take telephone calls about the diagnosis and management of HCV infection. In addition, more information can be found here http://www.health.govt.nz/our-work/diseases-and-conditions/hepatitis-c and here http://www.bpac.org.nz/2016/hepc/ .

Dr Arlo Upton
Microbiologist and
Medical Director Labtests and Northland Pathology
arlo.upton@labtests.co.nz
9090 574 7228 // 021 0215 9863

Introducing *Mycoplasma genitalium* testing to Labtests/Northland Pathology Laboratory: syndromic sexually transmitted infection (STI) testing.

Mycoplasma genitalium (MG) is considered to be an 'emerging pathogen'. It is believed to be associated with clinical disease similar, although less severe, to that caused by *Chlamydia trachomatis* (CT) although causal links have been not fully established. In a given population it is believed that the incidence of MG infection is about two thirds of that of CT for the same population. A study at Labtests in 2015 found that among patients having testing for CT, 6.7% had CT and 5.1% had MG. As with all STIs, incidence varied considerably for different ages, ethnicities, deprivation scores, and between genders.

Testing for MG has been complicated by several factors including:
1) lack of a standardised assay (test); and
2) uncertainty about whether or not asymptomatic people should be tested and treated.

Now there is an approved standardised test for MG which is available to us at Labtests. Currently, the NZ Sexual Health Guidelines suggest testing for MG in symptomatic patients (mainly). An additional complication is that MG can be difficult to treat as up to 50% of isolates are resistant to azithromycin.

From Monday 15th May 2017 Labtests/NPL will offer some **limited** testing for MG, under the following circumstances:

1. Patients aged 15 – 65 years with sterile pyuria and a sample referred for CT testing
2. On specific request (following discussion with clinical microbiologist)

Positive results will be sent to referrers in the same fashion as other tests with an accompanying comment regarding suggested treatment +/- referral. In addition, our microbiologists will attempt to telephone referrers with all positive MG results.

Additional *Trichomonas vaginalis* (TV) testing

The same 2015 study at Labtests found that overall 3.0% of patients having testing for CT had TV infection; 3.5% among females and 0.7% among males. TV infection was highly associated with Maori and Pacific ethnicity, female gender, and socio-economic deprivation. We now test for TV on uro-genital specimens in the following settings:

1. On specific request
2. Where CT or NG is positive
3. On females aged 13 – 17 years

In addition, **from Monday 15th May 2017**, we will test for TV in all patients aged 15 – 65 years with sterile pyuria and a sample referred for CT testing.

This additional syndrome STI testing will be audited after six months to ensure that it is successfully detecting additional STIs and so improving the sexual health of our population.

If you have any questions or comments about this please contact our clinical microbiologists:

Dr Arlo Upton
arlo.upton@labtests.co.nz

Dr Gary McAuliffe
gary.mcauliffe@labtests.co.nz

Group A Streptococcal antibodies (ASO and anti-DNase)

These tests are used to assist with the diagnosis of non-suppurative post-streptococcal illnesses including acute rheumatic fever (ARF), post-streptococcal glomerulonephritis (PSGN), post-streptococcal arthritis, and paediatric auto-immune neuropsychiatric disorders. Most non-suppurative post-streptococcal illnesses occur in children although PSGN, in particular, is reported in adults. Streptococcal serology should not be used to diagnose suppurative streptococcal infection, including pharyngitis. If required, please send a bacterial swab or aspirate of pus for culture.

Labtests will no longer accept requests without appropriate clinical details and a clear indication for testing (ie investigation of non-suppurative post-streptococcal illness).

Changes to testosterone assay

The total testosterone assay on our Siemens platform (Advia Centaur) has been modified. The new assay has advantages in being more specific, more precise (i.e. more reproducible, especially at very low values) and better aligned with the gold standard international reference method (mass spectrometry).

Results show excellent correlation with the method used at LabPLUS (ADHB), as both methods are internationally aligned. (Figure 1 and 2) The reference intervals for the two laboratories are now identical. The Labtests female reference range is now slightly lower than previously, which likely reflects less cross-reaction in the new assay from other steroids present in much larger amounts in plasma, especially DHEA/DHEAS.

When testing men for possible hypogonadism, it is important to remember to take a morning sample when the patient is well. Significant acute illness can have a marked suppressive effect, and drugs such as opiates (including tramadol and codeine) can also cause a significant reduction. High alcohol intake, especially binge drinking, can also have a suppressive effect, and abstinence for several days is recommended when in doubt. Even in well men, testosterone levels typically fall by at least 30% in the afternoon, sufficient to cause concern over a 'falsely low' result in about a third of patients.

While the assay can be used in patients on usual testosterone supplements, some exogenous testosterone formulations (e.g. nandolone) are not measured well with the new assay. This would provide a result lower than expected. Caution should be used when interpreting such results.

Labtests SHBG assay has also been modified, and the new assay has also been restandardised to an international (WHO) reference. The new assay measures about 30% lower, however the calculated free testosterone result using the new assay combination will be very similar to previously at low normal-low SHBG values (often seen in PCOS patients with insulin resistance).

Despite the assay improvements, it is prudent to remember that heterophile antibodies can interfere with the new testosterone assay, as they can with all other immunoassays. Biotin (vitamin B7) in patients taking high doses (> 5 mg/day) can also interfere, causing a false elevation.

In case a laboratory result and clinical scenario are incongruent, we encourage you to discuss it with a chemical pathologist. This applies to all tests.

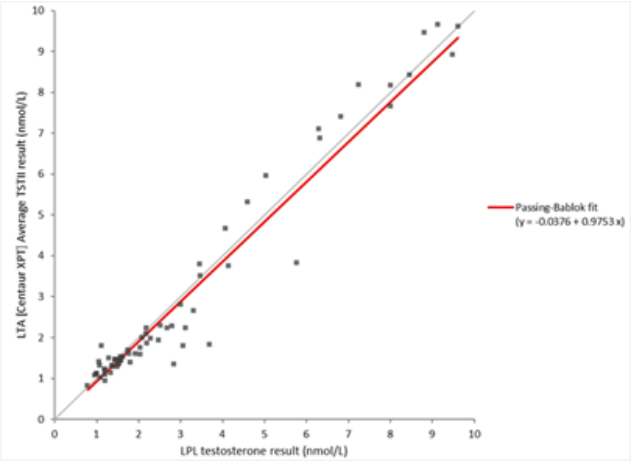

Figure 1: Passing & Bablok comparing the new Labtests testosterone assay (y axis) with Labplus's assay (x axis). 95% CI for intercept is-0.1834 to 0.1557; 95% CI for slope is 0.8465 to 1.052

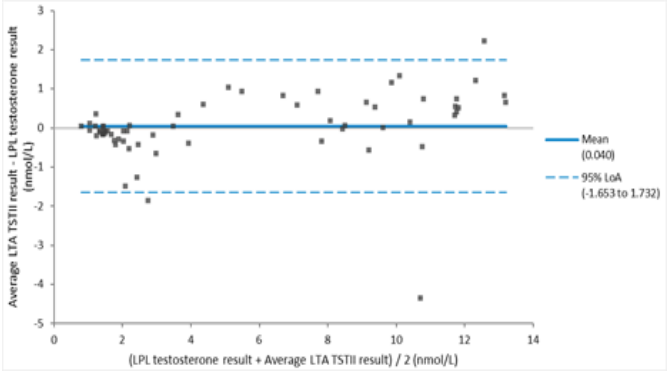

Figure 2: Difference Plot (New Labtests testosterone assay versus Labplus testosterone assay)

Dr Cam Kyle
Chemical Pathologist
cam.kyle@labtests.co.nz
Phone: 027 276 0038

Dr Charles Ng
Chemical Pathologist
charles.ng@labtests.co.nz
Phone: (09) 574 7291

Dr Samarina Musaad
Chemical Pathologist
samarina.musaad@labtests.co.nz
Phone: (09) 574 7286

dsDNA autoantibody results are changing

Antibodies to double-stranded DNA (ds DNA) are mainly used in the diagnosis and monitoring of systemic lupus erythematosus (SLE). Immune complexes formed by these antibodies and native DNA are thought to be important in the pathogenesis of SLE. They are highly specific for SLE and are not commonly found in other autoimmune conditions.

dsDNA autoantibodies are found in 70-80% of SLE patients depending on the platform used. It is important to note that a negative result does not exclude SLE. All patients with dsDNA autoantibodies should also have a positive antinuclear antibody (ANA).

Titres of dsDNA autoantibodies can correlate with disease activity in SLE. This tends to vary between patients. It is most useful in patients where increases in levels are seen either just before or in the early stages of a disease flare.

Laboratories use different methods to detect and quantify dsDNA autoantibodies. The Farr assay uses radioactivity and so while it is the classic method it is also not practical for most laboratories. Enzyme-linked immunosorbent assays (ELISA) are therefore more widely used.

At Labtests we have been using the Bio-Rad ELISA. We are switching to the Bioplex multiplex bead immunoassay, a process which enables the detection of multiple autoantibodies simultaneously. We have done numerous quality calibrations prior to changeover and the results with the new assay are comparable in terms of positive/negative. However, the absolute numbers as well as the cut-offs for positive and negative will be different. It is important that if patients are being monitored with serial levels of dsDNA autoantibodies that the platform change is taken into consideration. Numerical changes between platforms may not be clinically significant.

Old method:		New method:	
Negative	< 25 IU/mL	Negative	≤ 4IU/mL
Indeterminate	25-60 IU/mL	Indeterminate	5-9 IU/mL
Positive	≥ 60 IU/mL	Positive	≥ 10 IU/mL

A comment will appear on results to ensure clinicians are informed of this change.

Dr Miriam Hurst
Immunopathologist
021 403 478
miriam.hurst@labtests.co.nz

Labtests website for referrers— IMPORTANT CHANGES

Labtests website contains important information for both patients and referrers. Currently all the information is available for anyone to see. We plan to move to a system where the referrer information is available only to referrers. There are several reasons for this, namely; It is more appropriate for patients to discuss their concerns with their GP or specialist rather than looking for information that they may misinterpret; and secondly, we are preparing for the time when it is possible to have a portal for practitioners to access and amend their Labtests requesting and reporting details.

With this in mind our plan is to have all the information on the 'Referrer' tab accessible only by user name/password. This is expected to commence on 1st May 2017. From that date, when you access our website and select the referrer tab you will be prompted to enter your user name and password (we will provide you with these details soon) and then you will be prompted to change your password for future access.

Contact details for our pathologists will no longer be available for patients.

Our website (www.labtests.co.nz) has a lot of very useful information for medical staff, along with links to other important sites. We do hope that you continue to find this information helpful.

If you have any queries please don't hesitate to contact our Medical Liaison staff:

Customer Services Manager, Public Hospitals and Midwives	Southern and Eastern Districts	Northern and Western Districts	Commercial Services Manager
Wayne Dawn	**Sarah Davoren**	**Tim Fisk**	**Uma Singh**
(09) **574 7306 // 021 407 300**	**(09) 574 7256 // 021 622 973**	(09) **574 7233 // 021 0215 5454**	**(09) 574 7258 // 021 0214 1560**
wayne.dawn@labtests.co.nz	sarah.davoren@labtests.co.nz	tim.fisk@labtests.co.nz	uma.singh@labtests.co.nz

Labtests Key Contacts

Labtests Services		(09) 574 7399	
Results		**Press '1'**	24 hours/7 days per week
Courier		**Press '2'**	24 hours/7 days per week
Home Visits	**Email to auk.home.visits@labtests.co.nz (preferred)** **Or fax the request form for the test/s to (09) 574 7383.** If the home visit cannot be booked for the date requested Home Visits staff will contact the referrer to arrange an alternative date. Phone enquiries to 574 7399	**Press '3'**	Mon-Fri: 8:00am to 6:00pm Sat: 8:00am to 12:00pm
Special Test Bookings		**Press '4'**	Mon-Fri 8:00am to 6:00pm
Other Enquiries		**Hold the line**	Mon-Fri 7:00am to midnight Sat-Sun 8:00am to 7:00pm
ADD ON TESTS	To add test/s to an existing patient request form, Press '1' to speak to our call centre staff.	**Press '1'**	**Note:** some add on tests may require pathologists approval.
Dedicated line for practitioners to access all results (24/7)		**(09) 574 7398**	

Labtests Pathologists

Medical Director: Dr Arlo Upton — **574 7228 // 021 0215 9863** — **arlo.upton@labtests.co.nz**

Chemical Pathologists

Dr Charles Ng
(09) **574 7291 // 021 0215 6042**
charles.ng@labtests.co.nz

Dr Samarina Musaad
(09) **574 7283 // 021 404 769**
samarina.musaad@labtests.co.nz

Dr Cam Kyle
027 276 0038
cam.kyle@labtests.co.nz

Microbiologists

Dr Arlo Upton
(09) 574 7228 // 021 0215 9863
arlo.upton@labtests.co.nz

Dr Gary McAuliffe
021 0215 7069
gary.mcauliffe@labtests.co.nz

Haematologists

Dr Fransisca De Silva
(09) **574 7317 // 021 626 176**
fransisca.desilva@labtests.co.nz

Dr Dona Madola
(09) 574 7286 // 027 4047426
Dona.madola@labtests.co.nz

Dr George Chan
(09) **574 7309 // 027 286 5091**
george.chan@labtests.co.nz

Dr Lochie Teague
(09) **574 7309// 021 723 069**
lochie.teague@labtests.co.nz

Immunopathologist

Dr Miriam Hurst
(09) 574 7399 // 021 403 478
Miriam.hurst@labtests.co.nz

Pathology numbers

Biochemistry: DDI: 09 574 7254 // Fax: 09 574 7308
Microbiology: DDI: 09 574 7348 // Fax: 09 574 7344
Haematology: DDI: 09 574 4728 // Fax: 09 574 7308
Duty Scientist: DDI: 09 574 7382 // Fax: 09 574 7308

Note: When faxing to these numbers please use a header sheet and our team will endeavor to contact you that day. **Do not hesitate to phone the Pathologist directly.**

Customer Services — Medical Liaison Officers

Administration Fax

Customer Services Manager, Public Hospitals and Midwives	Southern and Eastern Districts	Northern and Western Districts	Commercial Services Manager
Wayne Dawn (09) **574 7306 // 021 407 300** wayne.dawn@labtests.co.nz	**Sarah Davoren** **(09) 574 7256 // 021 622 973** sarah.davoren@labtests.co.nz	**Tim Fisk** (09) **574 7233 // 021 0215 5454** tim.fisk@labtests.co.nz	**Uma Singh** **(09) 574 7258 // 021 0214 1560** uma.singh@labtests.co.nz

AUCKLAND DISTRICT HEALTH BOARD Te Toka Tumai
Anatomic Pathology Service
Mount Wellington

The contact numbers for all enquiries related to Anatomic Pathology Mt Wellington are:
Phone (09) 302 0516 **Fax: (09) 302 0517**

Updated: 18/4/17