The Analyser

PATHOLOGY NEWS

November 2019

Southern Community Laboratories

MEDLAB South

Welcome

Welcome to the last edition of The Analyser for 2019, hard to believe we are at this end of the year already. It has been a year of change for Southern Community Laboratories in Nelson-Marlborough and Otago-Southland. 2019 started with a new 2DHB contract to bed in and the retirement of long serving General Manager and COO Jan Parker. I moved south from my GM role in Canterbury / South Canterbury in February to take on the 2DHB GM role here. We also have new Laboratory Managers in Nelson (Rebecca Brosnan), Blenheim (Peter Moore), Oamaru (David Nutbean) and Invercargill (Craig Rodgers). We now have a Point-of-Care Coordinator (Tracey Hollings) for the region and a Customer Liaison and Support Officer (Tash Bambry), both of whom started in the latter half of the year to both support and further roll out our E-orders software.

It has been a busy year both in our collection services and in the laboratories across the region, especially with the measles outbreak in recent months. We hope you find this newsletter informative and helpful, and would like to take this opportunity to say that we appreciate the support you have given us over the past year and wish you all a happy and healthy festive season.

Leanne Giles
General Manager

Interpretation of intermediate antibiotic susceptibility

- The definition of intermediate, or "I", has changed to mean *susceptible, increased exposure*. Organisms reported as intermediate to a given antibiotic can be effectively treated so long as increased exposure (e.g. through higher dosing) can be achieved. Intermediate susceptibility should not be considered the same as resistant, neither should the antibiotic automatically be avoided.
- Susceptibility results only apply if particular dosing regimens are used, as published in our laboratory clinical breakpoints document. If doses used are lower than the specific published recommendations, a susceptible result may not be valid.

Intermediate susceptibility – what does it mean and what should we do about it?

In the microbiology laboratory the most useful part of the reports we issue is often the susceptibility result. Whether or not a given organism is "S" or "R" to a given antibiotic in most instances will tell us which antibiotic to use (assuming infection is present of course). But what about "I"? And does "I" even matter?

The laboratory follows strict criteria, known as the clinical breakpoints, to determine how to interpret susceptibility test results. These clinical breakpoints are determined by the European Committee on Antimicrobial Susceptibility Testing (EUCAST) and are published every year (available here: http://bit.ly/2KHCciB). For microbiologists, 2019 saw some major changes to important aspects of susceptibility testing criteria and a shift in the way we view the "I" category.

In line with the new EUCAST definitions, our reports now display interpretation of results as follows:

- S = Susceptible, standard dose
- I = Susceptible, increased exposure
- R = Resistant

You will notice that intermediate organisms are now clearly placed in the susceptible group. Increased exposure of a given antibiotic may be achieved by using a higher dose, more frequent dosing or changing the mode

of administration. Alternatively, if the antibiotic is already well concentrated at the site of action, for example trimethoprim for urinary tract infections, standard dosing should be sufficient. Intermediate should no longer be viewed as an uncertain result or lumped together with resistant organisms, but rather, the antibiotic dosing regimen should be optimised to ensure therapeutic success.

There are not very many situations where we will be reporting "I" but should you see it and are unsure what to do, think about whether you can up the dose, up the frequency or whether the drug is already concentrated at the site where it's needed. If you are still unsure, we invite you discuss with a clinical microbiologist, available via your local microbiology laboratory or DHB hospital switchboard.

Does dosing matter?

Did you know that the laboratory clinical breakpoints, which determine whether we report S, I or R, are only valid if a particular dose of an antibiotic is being used? Dosing tables are provided at the end of the EUCAST breakpoints document we use in the microbiology laboratory to determine susceptibility test results (available here: http://bit.ly/346BLWB).

These recommended dosing regimens are published following careful consideration of a number of factors, including the minimum inhibitory concentration (MIC) of the organism, the pharmacokinetics and pharmodynamics (PK/PD) of the antibiotic, as well as clinical (in vivo), laboratory (in vitro) and predictive modelling studies.

Table1. Common antibiotic doses published by EUCAST.

Antibiotic	Standard dose	High dose	Comment
Flucloxacillin	1g TDS	1g QID	
Amoxicillin	500mg TDS	0.75-1g TDS	*H. influenza* high dose only
Co-amoxiclav	625mg TDS	1g TDS	*H. influenza* high dose only
Cefalexin	250mg-1g BD or TDS*		Depends on species and/or type of infection
Doxycycline	100mg OD	200mg OD	
Ciprofloxacin	500mg BD	750mg BD	*Pseudomonas* high dose only
Co-trimoxazole	960mg BD	960mg TDS or 1.44gBD	

**Skin and soft tissue infections require 1g whereas urinary tract infections may respond to lower dosing regimens due to concentration of the antibiotic within the urinary tract.*

Worth a particular mention are *Haemophilus influenzae* and *Pseudomonas aeruginosa* where a higher dose should always be used. Therapeutic failure is not always due to bacterial resistance. Dose optimisation has an extremely important part to play. See Table 1.

Where intermediate sensitivity is reported (see section above) it will be important to use the higher dose listed. It is timely to review the current dosing recommendations available from the various different sources such as BPAC, NZF and HealthPathways, to ensure they align with what EUCAST require us to report in the laboratory.

For any further questions, comments or queries please get in touch.

Dr Juliet Elvy
Clinical Microbiologist

Swab guide update

There is a revised specimen guide now available (see attached) and it is currently being distributed to practices. Please discard ALL previous versions.

Notable changes to the guide are as follows:

Pertussis PCR

Due to a change in laboratory method, a nasopharyngeal swab using a UTM collection kit is now required for pertussis PCR testing (previously a blue top charcoal swab was used). Please note that a dry nasopharyngeal swab will no longer be acceptable. See attached guide for full sampling instructions.

Measles and Mumps PCR:

UTM collection kits will now also be used for measles and mumps PCR. The UTM collection kits will be distributed to ALL practices (they are also to be used for Pertussis PCR requests, see above) so you no longer need to contact your nearest laboratory to request a kit when you have a suspected case. You still need to contact Public Health prior to taking samples for measles or mumps PCR.

Please refer to the attached guide for further information regarding appropriate swabs to use for various tests.

Discontinuation of reporting anti-thyroglobulin

From 1 January 2020 the Dunedin SCL will no longer report anti-thyroglobulin (anti-Tg) as part of the Thyroid Antibody Screen. This change will affect requests from the Otago/ Southland, South Canterbury, and Nelson/Marlborough regions.

The most common cause of thyroid dysfunction is autoimmune. Indeed, autoimmune thyroid disease is the most common autoimmune condition in our community. Thyroid related autoantibodies are useful in supporting autoimmune as the underlying mechanism, particularly where the cause of abnormal thyroid function tests is unclear. In patients with hypothyroidism, in terms of specificity, anti-thyroid microsomal or peroxidase antibodies (anti-TPO) is the most helpful autoantibody to order when autoimmune (Hashimoto's) thyroiditis is suspected. However, like many autoantibodies, it can be detected in many patients' years before the onset of clinically overt hypothyroidism. Studies have shown that those with positive anti-TPO antibodies and normal thyroid function are at greater risk than the general population of developing hypothyroidism in the future.

Although commonly ordered, anti-Tg antibodies are less specific for the diagnosis of autoimmune thyroid disease and can be found in a number of other conditions, including thyroid carcinoma, where its presence can be helpful in monitoring recurrence after thyroidectomy or radioactive thyroid ablation.

Given the superior clinical utility of anti-TPO antibodies, when thyroid antibodies are ordered, rather than performing both anti-TPO and anti-Tg antibodies, the laboratory will perform anti-thyroid microsomal (anti-TPO) antibodies only.

Measurement of thyroglobulin (Tg) is important when monitoring patients with differentiated thyroid cancer. However, the presence of anti-Tg antibodies in these patients can interfere with the measurement of Tg. For this reason, anti-Tg will continue to be measured at the same time as Tg in these patients. When Tg is requested, the anti-Tg test is always added automatically and there is no requirement to specify a request for anti-Tg on the request form.

Southern Community Laboratories

Christmas / New Year opening hours for SCL collection centres

Collection Centres	Mon 23 Dec	Tue 24 Dec	Wed 25 Dec	Thurs 26 Dec	Fri 27 Dec	Sat 29 Dec	Mon 30 Dec	Tue 31 Dec	Wed 1 Jan	Thurs 2 Jan	Fri 3 Jan	Sat 5 Jan
Filleul St	0700 - 1615hrs	0700 - 1615hrs	Closed	Closed	0700 - 1615hrs	0900 - 1130hrs	0700 - 1615hrs	0700 - 1615hrs	Closed	Closed	0700 - 1615hrs	0900 - 1130hrs
Hillside Rd	0730 – 1545hrs	0730 – 1545hrs	Closed	Closed	0730 – 1545hrs	Closed	0730 – 1545hrs	0730 – 1545hrs	Closed	Closed	0730 – 1545hrs	Closed
Mosgiel	0800 – 1500hrs	0800 – 1500hrs	Closed	Closed	0800 – 1500hrs	Closed	0800 – 1500hrs	0800 – 1500hrs	Closed	Closed	0800 – 1500hrs	Closed
Mornington	0800 - 1545hrs	0800 - 1545hrs	Closed	Closed	0800 - 1545hrs	Closed	0800 - 1545hrs	0800 - 1545hrs	Closed	Closed	0800 - 1545hrs	Closed
Dunedin hospital	0730 - 1600hrs	0730 - 1600hrs	Closed. No ward rounds.	Ward round only 0800 - 1200hrs	0730 - 1600hrs	Closed	0730 - 1600hrs	0730 - 1600hrs	Ward round only 0800 - 1200hrs	Ward round only 0800 - 1200hrs	0730 - 1600hrs	Ward round only 0800 - 1200hrs
Mornington	0800 – 1600hrs	0800 – 1600hrs	Closed	Closed	0800 – 1600hrs	Closed	0800 – 1600hrs	0800 – 1600hrs	Closed	Closed	0800 – 1600hrs	Closed
Green Island	Closed till 20 January											
Marinoto	Closed till 20 January											

Normal hours will resume on Monday January 6 for all clinics except Marinoto and Green Island.
On-Call phlebotomist available by referrer request for urgent blood taking - phone: 027 229 6466