NZIMLS
THE NEW ZEALAND INSTITUTE OF MEDICAL LABORATORY SCIENCE (INC)

ISSN 1171-0195 Volume 66 Number 1 April 2012

Established in 1946

New Zealand Journal of Medical Laboratory Science

Official Publication of the New Zealand Institute of Medical Laboratory Science Incorporated

science of the century conference 2012

Wellington Convention Centre
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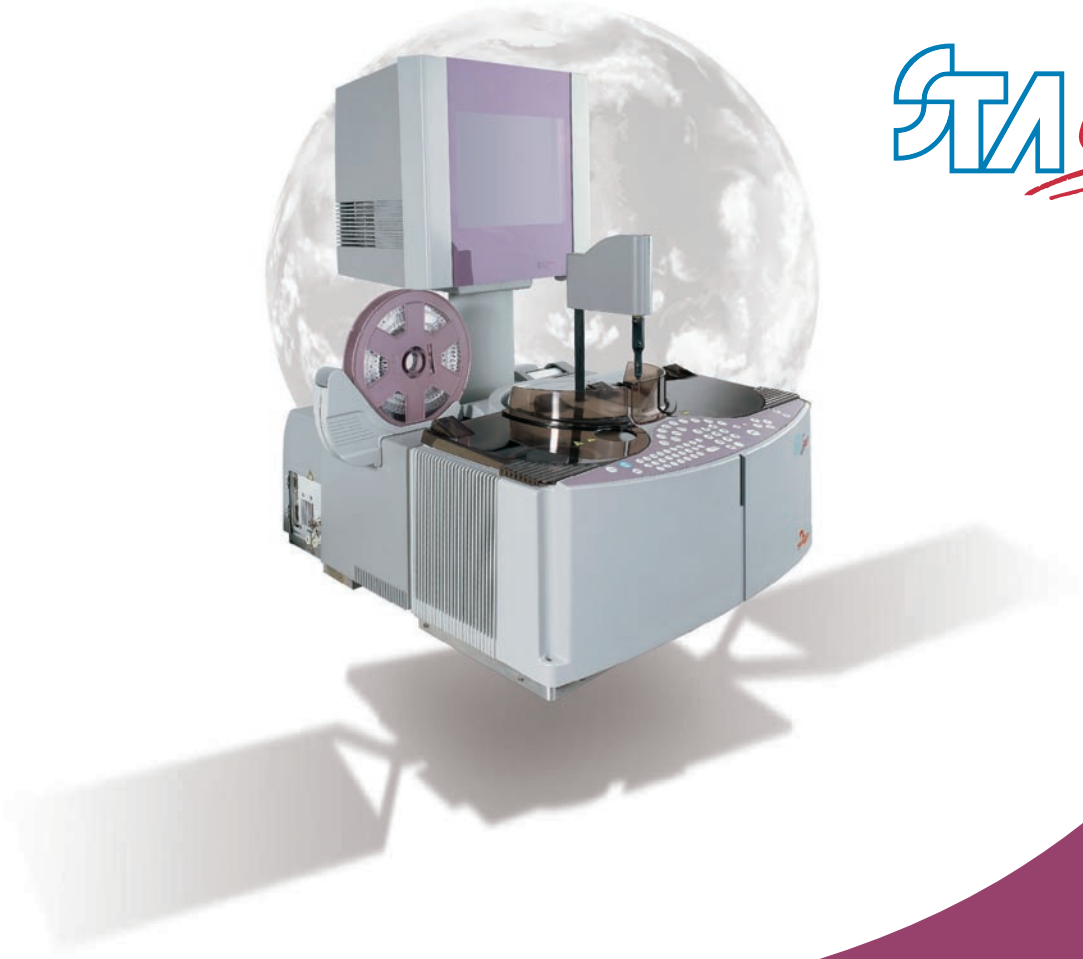

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Brief instructions to authors
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Indexing
The Journal is open access (www.nzimls.org.nz) and is abstracted by the Cumulative Index to Nursing and Allied Health Literature (CINAHL), EMBASE, EBSCO, Biosis Citation Index, Scopus, Google Scholarly and Thomson Gale. The Journal is a member of the World Association of Medical Editors (www.wame.org)

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Volume 66 Number 1
April 2012
ISSN 1171-0195

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Inside this issue

Mohammad Shahid and colleagues from India analysed the occurrence of *bla* and cephalosporin resistance genes responsible for carbapenem and cephalosporin resistance in Gram-negative bacteria. They found that resistance to carbapenem is quite low in their area in India; only bla_{VIM} was detected responsible for carbapenem resistance in their isolates. They state that implementation of stringent preventative measures are needed to prevent widespread dissemination of MBLs in Enterobacteriaceae.

Paul Austin and colleagues studied the diagnostic performance of the BMD Connective 10® (C10®) assay by reviewing the results from two independent external quality assurance programmes over a three year period when placed into a routine diagnostic testing environment. Their retrospective review showed that under these conditions the C10® assay consistently and reliably detects antibodies directed against SSA, SSB, Ro 52, Sm, Sm/RNP, Scl-70, Jo-1 and Ribo-P. Furthermore, in addition to excellent sensitivity against the defined antigens, the assay demonstrated good specificity.

The New Zealand Journal of Medical Laboratory Science became open access worldwide in early 2011 and has also been added to additional international data bases in the last three years. The Editor set out to determine which international journals cited articles from the NZIMLS Journal in the last ten years. He found that a total of 37 articles were cited 57 times in international medical and biomedical journals from 2002 to 2011 with about 60% of the citations in the last three years and the largest number of citations in 2011 (n=16). An increasingly significant number of published articles attracted citations in the international medical and biomedical literature with the greatest increase occurring since the NZIMLS Journal became open access.

In this issue is a retraction notice regarding a previously published article in the Journal. It was discovered that this article was essentially republished in another international journal and there was doubt about the validity of some laboratory parameters in both articles. Both journals have now issued formal retraction notices. Republishing one's own work in full or substantial part in other journals, without permission or acknowledgement, amounts to self-plagiarism. An accompanying Editorial discusses self-plagiarism and the scientific literature.

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Editorial Board changes

Terry Taylor from Southern Community Laboratories in Dunedin has joined the Editorial Board as Deputy Editor. In this role he replaces Ann Thornton from the University of Otago, Wellington who remains as an Editorial Board Member.

We welcome Holly Perry from AUT, Auckland and Cat Ronayne from the University of Otago, Dunedin as new Editorial Board Members with expertise in transfusion medicine and haematology respectively.

Although recently retired from the University of Otago, Dunedin, Mike Legge remains an Editorial Board Member as he wishes to remain actively involved in the profession.

We especially thank Kevin Taylor from Canterbury Health Laboratories, Christchurch for his help and advice, having been on the Board for many years.

Self-plagiarism and the scientific literature

Rob Siebers

Intentional plagiarism of another person's previously published work is, of course, absolutely not allowed and amounts to scientific fraud. But what about quoting your own published work in another publication? Surely you 'own it' seeing it was your own words? The answer is not as straight forward and can either be a 'yes' or 'no' depending on the circumstances.

According to Wikipedia: *"self-plagiarism (also known as "recycling fraud") is the reuse of significant, identical, or nearly identical portions of one's own work without acknowledging that one is doing so or without citing the original work"* (1).

In the scientific literature the reader expects original articles. Tremendous resources go into the editorial process and reviewers' time and commitment for papers submitted to scientific journals. To then find out that the submitted work has previously been published in full or substantial part thereof, i.e. self-plagiarism, is frustrating for journal editors, reviewers and readers. This 'recycling' of previous published work boost a researcher's CV which is of importance for a researcher's academic career in terms of promotion and research grant applications. There is great pressure in academia to publish, the so called "publish or perish mantra" and this, unfortunately does lead to duplicate publications. A quick search in January 2012 on PubMed unearthed 73 duplicate or redundant notices in the last 10 years, including one case of a triplicate publication. This number is low compared to the number of published articles. It is estimated that some 27,000 new articles appear weekly on Reuter's Web of Science database (2). It should be noted that some of those cases were inadvertent duplicate publications where the error lay with the publishers and not the authors. It has occurred personally as one of my papers was subsequently republished three months later in the same journal through an oversight by the publisher (3).

In many cases the publishers of the original article hold copyright. Most scientific journals require the submitting authors to sign a statement that the work is original, has not previously been published in full or in a substantial part, nor is it under simultaneous consideration by another journal. Generally, it can have previously been published as an abstract. However, acknowledge and reference in the submitted article that the work has previously been presented at a scientific meeting and published as an abstract and notify the editor of this fact in a submission letter.

There are instances where one can re-publish one's previously published work. One scenario is where it has been published in another language and the authors want to reach a wider English speaking audience or a different professional group. In this case permission of the journal that holds copyright to the original article is required. It also requires permission from the editor of the English written journal that the journal is happy to have the original article reprinted, and if granted, the article must be clearly be identified as having previously been published elsewhere with an appropriate reference. This has previously occurred with an article in our journal that was subsequently reprinted in a Spanish language journal with appropriate acknowledgements and permission from the NZIMLS as copyright holder of the original article (4,5). Our journal has also reprinted a published article from the Australian Journal of Medical Science, with permission, as we believed it was of interest to our readers (6).

Another scenario for acceptable self-plagiarism is when writing up the methods section. Quite often in research, identical methods are used in subsequent new studies and there are only limited ways in how one writes up the methods section. However, one should state "..as previously described.." with an appropriate reference to a previous publication. If not appropriately referenced, recycling one's own sentences from previous publications amounts to self-plagiarism and implies that new information is being presented. This deceives editors, reviewers and readers and is considered to be fraudulent.

Many journals now employ soft ware programs to detect plagiarism, as do educational institutes. Our journal does not, due to high annual licence fees. However, with the use of Google Scholar one can put in whole paragraphs of a submitted article and see if a perfect or near perfect match comes up. Another technique is to search the submitting author's name on Pubmed, Web of Science and Scopus to see if similar sounding article to the one submitted has already been published. Another sign of possible plagiarism is when the grammar of paragraphs in the submitted article changes, especially when one comes up with a single beautifully phrased paragraph.

Since our journal became open access worldwide early last year we have seen an increasing number of overseas submissions to the journal, which is good. Twice, as Editor, I have had to reject a submission as it had already been published elsewhere. When contacted, the authors expressed ignorance of the fact that one cannot submit previously published work despite the fact that they signed the author's letter stating, among other, that "*This work is original and has not previously been published in full or substantial part thereof (except as an abstract)".* We have, however, recently discovered a case of duplicate publication, i.e. self-plagiarism in our journal. Readers will notice a retraction of a previously published paper elsewhere in this issue of the journal. A paper published in 2009 in our journal was subsequently discovered to have been republished substantially in another international biomedical journal in 2010. Because there was also doubt about the validity of some laboratory parameters, the decision was made by both journal editors to retract both articles from the literature. This is done, not to punish the authors, but to correct the literature and ensure its integrity.

The first author of both articles pleaded ignorance of the rule through inexperience having just started his research career. However, his co-authors were senior academics with extensive publication records. They should have known better. As well, they all signed the statement that the submitted work had not previously been published in full or substantial part thereof when they submitted their article for consideration to the other journal. Lack of information regarding self-plagiarism (or plagiarism) appears to be widespread. A recent study sought to determine knowledge of plagiarism among medical students and faculty academics at a medical college in Pakistan (7). That study found that only 63% of the medical students and 88% of the faculty academics had a correct understanding of self-plagiarism. An even greater number of both groups had a general lack of understanding of copyright rules. This lack of knowledge together with a lack of knowledge of authorship criteria (8) poses potential problems for journals.

Thus, authors need to consider the following when submitting articles to journals. Have I published this work in full or substantial part in another journal or have I copied major parts verbatim from another article? In the case of the former, do not submit and waste editors, reviewers and readers time and commitment. In case of the latter, rewrite the article in your own words. It has taken the Editor a considerable amount of time and resources on this latest case of self-plagiarism and previous cases of prior publication. Time which could be spent better helping other authors in ensuring their accepted articles are put forward to the readers in the best possible

light to the benefit of authors, readers, and the advancement of scientific knowledge.

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Histology SIS Seminar

The 2011 Histology SIG seminar was held in Dunedin on the 12th of November. There were 64 registrations for the seminar, originating from all over the country.

The venue
The Hunter centre accommodated everyone quite well. The conference room had all the appropriate equipment (PC with USB and all other necessary peripherals) ready to go. We were seated four persons per table looking at two overhead screens, to ensure no one missed anything, at the front of the room. The Hunter centre also provided a microphone but nobody needed to use it as the acoustics were quite good. Morning tea, lunch and afternoon tea were provided by the university union's catering department. The quality was superb and no one went hungry.

The program
We had 13 excellent topics which was very informative with fun bits in between. Sadly the 14th speaker (Mereoni Togoloa from Fiji) had to cancel on short notice due to an unfortunate event back home. There were also two poster presentations: (1) "Artifacts and Organism Mimickers in Pathology" by Shelvin Minas Fowler and Victor Nanales (2) "Lipid Storage Disease of the Liver" by Brigitte Visagie who gave a talk on the same subject as well.

The Medica Pacific sponsored prize for best first time speaker was awarded to Catherine Gray for her bit on "Evaluation of Myelin Stains" while the Institute's prize for best overall speaker went to Liberatta Lewis for her intensive discussion on "The Role of Histology in the Diagnosis of Molar Pregnancy". Geoff Patton chaired the whole event and did an awesome job - he will be hijacked to do it again next time.

After the group photo Robyn Rae confirmed that Palmerston North will be hosting the next Histology SIG meeting.

To end the day we all went for a bus ride to Glenfalloch for dinner. At our arrival there we were greeted by a lone piper who escorted us up to the restaurant. The sound of his bagpipes echoed over Dunedin harbour and caused some goosebumps. A great time was had by all.

Stadler Van Dyk

Immunology Special Interest Group meeting 2011

This popular meeting was held at the Barclay room at the Otago Museum in Dunedin on the 5th November. There were 40 delegates from laboratories all over New Zealand with a couple of Australian guests as well. Dunedin turned on the welcome with a good two inch snow fall to greet all our visitors on the Saturday morning. This venue was excellent and gave the delegates the opportunity to wander around the museum during the breaks.

The presentations were all well researched and often entertaining in what was a very appreciative audience. The talks were varied covering topics from mountain climbing to international men of mystery, with a little bit of immunology thrown in between! The day started with presentations on Autoimmune Lymphoproliferative Syndrome, ANCA and Quantiferon Gold before a well earned morning tea.

After tea Strongyloides and Coeliac disease were covered. A good lunch followed with some even taking advantage of a break in the southerly to enjoy a stroll out in the just above zero outdoors. Immunology delegates are well known for their hardiness and staying power as can be shown by the fact that no-one was seen at the Captain Cook tavern over the lunch hour. I can personally vouch that I didn't see any of the other delegates there when I went over to check.

The afternoon session was held with the background of an ageing country busker permeating through the theatre. We had a special presentation from Professor Ian Morison on the future role of massively parallel sequencing in the diagnostic laboratory. This covered the history of sequencing and the future of this technology on our laboratory diagnosis. We then had two presentations giving us updates on the RCPA serology and immunology QAP programs.

The last session covered a case of acute hepatitis B, a summary of HIV and an overview of disaster preparation. By now most of the delegates were getting very dry and in need of hydration so after a quick awards presentation it was off down George Street and finally onto the very apt Chilli Planet for the evening meal.

This was a very informative and fun meeting and a huge thank you to Helen van der Loo for convening the meeting and to all the presenters and delegates who made this such an entertaining forum. I invite everyone to have a look at the presentations given on the NZIMLS website. Thank you to the sponsors of this meeting, Abbott Diagnostics, Bio-Rad, Immunz, ESL Biosciences, Banksia, Diagnostic Solutions, Roche and NZIMLS.

Prize winners
Best presentation – Terry Taylor
Runner up – Roger Linton
Best first time presentation – Deborah Armstrong

Molecular epidemiology of carbapenem-resistant Enterobacteriaceae from a North Indian Tertiary Hospital

Mohammad Shahid, Umesh, Farrukh Sobia, Anuradha Singh, Haris M Khan, Abida Malik and Indu Shukla

Abstract

Aim: To analyse the occurrence of *bla* genes (bla_{IMP}, bla_{VIM}, bla_{GIM}, bla_{SIM}, bla_{SPM}, bla_{PER}, bla_{KPC}, and bla_{OXA}) responsible for carbapenem-resistance, as well as the presence of cephalosporin-resistance genes (bla_{CTX-M}, bla_{TEM}, bla_{SHV} and bla_{ampC}) by polymerase chain reactions (PCRs).

Methods: The study was performed on routine samples subjected to culture and antibiotics susceptibility during September 2007 to April 2008. Bacterial cultures from 893 patients yielded growth of Gram-negative bacteria, and of which, sixteen isolates (*E. coli*= 10; *Klebsiella pneumoniae*= 6) were reported resistant to imipenem on primary antibiotic susceptibility testing. The minimum inhibitory concentration (MIC) for imipenem was detected as per the CLSI guidelines. These 16 isolates were further studied for the presence of carbapenem-resistance genes including bla_{IMP}, bla_{VIM}, bla_{GIM}, bla_{SIM}, bla_{SPM}, bla_{PER}, bla_{KPC}, and bla_{OXA} by PCR. Since the isolates were also reported resistant to third-generation cephalosporins, these 16 isolates were also screened for the presence of bla_{CTX-M}, bla_{ampC}, bla_{TEM}, and bla_{SHV}.

Results: Carbapenem-resistance was reported in 1.8% (16/893) isolates based on antibiotics susceptibility testing. However on detection of imipenem-MIC, only 7 (0.8%) isolates were found as imipenem-resistant. Of these 16 isolates, carbapenem-resistance gene, bla_{VIM}, was detected in only 18.6% (3/16) isolates; all were *K. pneumoniae*. On cumulative analyses, any of the *bla* genes was detected in a total of 93.6% (15/16) isolates. bla_{CTX-M}, bla_{ampC}, bla_{TEM} and bla_{SHV} were detected in 87.5% (14/16), 43.8% (7/16), 75% (12/16) and 31.3% (5/16) isolates, respectively. Maximum number (4/16; 25%) had a combination of bla_{CTX-M} + bla_{TEM}, followed by bla_{CTX-M}, bla_{ampC}, bla_{TEM}, and bla_{SHV} in 3 (18.8%; 3/16) isolates.

Conclusion: Resistance to carbapenem is quite low in our area; only bla_{VIM} was detected responsible for carbapenem resistance in our isolates. This is among the premier reports from India looking extensively for the molecular epidemiology in carbapenem resistant isolates.

Keywords: Carbapenem resistance, bla_{VIM}, PCR, India.

N Z J Med Lab Sci 2012; 66: 5-7

Introduction

In recent years increased incidence of Enterobacteriaceae possessing extended-spectrum beta-lactamases (ESBLs) and AmpC enzymes have occurred due to wide spread use of broad-spectrum cephalosporins. Due to which carbapenems are considered to be one of the few remaining therapies for infections caused by these resistant bugs (1). However, the emerging reports on increasing carbapenem resistance in Enterobacteriaceae are quite alarming (2).

Carbapenemases, the enzymes conferring hydrolysis of carbapenems, are diverse and include representatives of β-lactamase molecular classes A, B, and D (Oxa). Class A carbapenemases are generally rare, but the KPC variants are now spreading rapidly (3). KPC-carbapenemases are capable of hydrolyzing carbapenems, penicillins, cephalosporins and aztreonam, and are inhibited by clavulanic acid. The class B metalloenzymes (IMP, VIM etc.) have a broader substrate of hydrolysis ranging to penicillins, cephalosporins, cephamycins, oxacephamycins, and carbapenems, but not monobactams. Their activity is zinc dependant and is inhibited by EDTA (2).

IMP-1 has been spreading among Gram-negative bacteria, including Enterobacteriaceae in Japan since 1991 (4). Subsequently, VIM-1 was described in Italian *P. aeruginosa* isolate in 1999 (5), and VIM-2 in *P. aeruginosa* isolate from France (6). KPC-1 was first reported from carbapenem-resistant *K. pneumoniae* in U.S.A. (7) and subsequently there have been reports from various regions of the globe including Europe (3, 8, 9), Israel (10, 11), and China (12).

Despite of increasing reports on these carbapenem-resistance genes from various countries, such reports are fragmentary from India. Therefore, the present preliminary study was performed to look for the molecular epidemiology of *bla* genes responsible for carbapenem-resistance in Enterobacteriaceae isolates that were reported resistant to a carbapenem on primary antibiotic susceptibility testing.

Materials and methods

The study was performed in the Department of Microbiology of JN Medical College & Hospital, A.M. University, Aligarh, India on routine samples subjected to culture and antibiotics susceptibility during September 2007 to April 2008. Antimicrobial susceptibility was determined, including to that of imipenem, and the minimum inhibitory concentration (MIC) for imipenem was detected in those isolates found resistant to imipenem on antimicrobial susceptibility testing. The isolates found resistant to imipenem on primary antimicrobial susceptibility were further studied for the presence of carbapenem-resistance genes (bla_{IMP}, bla_{VIM}, bla_{GIM}, bla_{SIM}, bla_{SPM}, bla_{PER}, bla_{KPC}, and bla_{OXA}). Since these isolates were also reported resistant to third-generation cephalosporins, they were also screened for the presence of bla_{CTX-M}, bla_{ampC}, bla_{TEM}, and bla_{SHV}.

Detection of *bla* genes (bla_{IMP}, bla_{VIM}, bla_{GIM}, bla_{SIM}, bla_{SPM}, bla_{PER}, bla_{KPC}, and bla_{OXA}) responsible for carbapenem resistance

The primer sets used for detection of carbapenem-resistance *bla* genes are shown in Table 1. The primers for detection of bla_{IMP}, bla_{VIM}, bla_{GIM}, bla_{SIM}, bla_{SPM}, bla_{PER}, and bla_{OXA} were synthesized by Operon, Germany (order number 55180983) and the primer set for bla_{KPC} was synthesized by Chromous Biotech, Banglore, India.

Table 1. List of the PCR-primes used

Targets	Primer sequence (5′ to 3′)
bla_{IMP}	F-GAA TAG (A/G)(A/G)T GGC TTA A(C/T)T CTC
	R-CCA AAC (C/T)AC TA(G/C) GTT ATC
bla_{VIM}	F-GTT TGG TCG CAT ATC GCA AC
	R-AAT GCG CAG CAC CAG GAT AG
bla_{GIM}	F-TCA ATT AGC TCT TGG GCT GAC
	R-CGG AAC GAC CAT TTG AAT GG
bla_{SIM}	F-GTA CAA GGG ATT CGG CAT CG
	R-TGG CCT GTT CCC ATG TGA G
bla_{SPM}	F-CTA AAT CGA GAG CCC TGC TTG
	R-CCT TTT CCG CGA CCT TGA TC
bla_{OXA}	F-ATG GCA ATC CGA ATC TTC G
	R-TTA TCG CGC AGC GTC CGA G
bla_{PER}	F-ATG AAT GTC ATT ATA AAA AGC
	R-AAT TTG GGC TTA GGG CAG AA
bla_{KPC}	F-CTTGCTGCCGCTGTGCTG
	R-GCAGGTTCCGGTTTTGTCTC
bla_{CTX-M}	F-ATGTGCAGYACCAGTAARGT
	R-TGGGTRAARTARGTSACCAGA
bla_{TEM}	F- KACAATAACCCTGRTAAATGC
	R-AGTATATATGAGTAAACTTGG
bla_{SHV}	F-TTTATCGGCCYTCACTCAAGG
	R-GCTGCGGGCCGGATAACG
bla_{AmpC}	F-CCCCGCTTATAGAGCAACAA
	R-TCAATGGTCGACTTCACACC

Y Wobble (C + T); R Wobble (A + G); S Wobble (C + G); K Wobble (G + T)

Detection of bla genes (bla_{CTX-M}, bla_{ampC}, bla_{TEM}, and bla_{SHV}) responsible of cephalosporin resistance

The class A extended-spectrum beta-lactamases (ESBLs) (bla_{CTX-M}, bla_{TEM}, and bla_{SHV}) and class C beta-lactamase (bla_{ampC}) was determined by PCR as described previously (13).

Results and discussion

From various samples collected during September 2007 to April 2008, bacterial culture from 893 patients yielded growth of Gram-negative bacteria, and of which, 1.8% (16/893) isolates were reported as resistant to carbapenem (imipenem was used in this study) based on antibiotics susceptibility testing by the disc diffusion method. Among these sixteen carbapenem resistant isolates 10 were *E. coli* and 6 were *Klebsiella pneumoniae*. On detection of imipenem-MIC, only 7 (0.8%; 7/893) isolates were found as imipenem-resistant (MIC ≥ 16 µg/ml). Of these 16 isolates, carbapenem-resistance gene, bla_{VIM}, was detected in 18.6% (3/16) isolates by PCR (Figure 1); all were *K. pneumoniae*.

Enterobacteriaceae with carbapenem-resistance are also resistant to many other classes of antibiotics including beta-lactams, fluoroquinolones, aminoglycosides etc. and may pose a serious therapeutic challenge. Despite the fact that presence of metallo-beta-lactamases (MBLs) is reported (phenotypically) in various Indian scientific reports, the molecular approach (detection of *bla* genes) for their detection is still limited from India. We know of only a few reports characterizing the carbapenem-resistance genes in Indian bacterial population at a molecular level (14, 15). It is again noteworthy that the molecular reports on occurrence of carbapenem *bla* genes in Indian "Enterobacteriaceae" are also limited. We found a recent Indian study claiming to be the first report describing the presence of multiple carbapenem-resistance genes in Enterobacteriaceae (14). However, in their collection of Enterobacteriaceae they found bla_{IMP} as the most prevalent MBL gene. In another report by Castanheira et al. (15), bla_{VIM} was reported as the most prevalent carbapenem-resistance gene in *Pseudomonas aeruginosa*. In the present study we found the presence of bla_{VIM} in our area; we did not find any other carbapenem resistance gene in our collection.

On cumulative analyses, we noticed that any of the *bla* genes, screened in the current study, was present in a total of 93.6% (15/16) isolates. bla_{CTX-M}, bla_{ampC}, bla_{TEM} and bla_{SHV} were detected in 87.5% (14/16), 43.8% (7/16), 75% (12/16) and 31.3% (5/16) isolates, respectively. Maximum number (4/16; 25%) had a combination of bla_{CTX-M} + bla_{TEM}, followed by bla_{CTX-M}, bla_{ampC}, bla_{TEM}, and bla_{SHV} in 3 (18.8%; 3/16) isolates. The detailed results are shown in Table 2.

Table 2. Distribution of various *bla* genes and their combinations

Occurrence of *bla* genes	No. of isolates
CTX-M only	0
AmpC only	1
CTX-M + AmpC	2
CTX-M + TEM + SHV + AmpC	3
CTX-M + TEM	4
CTX-M + TEM + SHV	1
CTX-M + AmpC + TEM	1
CTX-M + TEM + VIM	2
CTX-M + TEM + SHV + VIM	1

In the light of the available data and keeping in mind the paucity of reports on carbapenem-resistance genes in Indian Enterobacteriaceae, we emphasize here a real need to perform more scientific studies in this aspect covering wider Indian geographical areas. Moreover, implementation of stringent preventative measures are also needed to prevent widespread dissemination of MBLs in Enterobacteriaceae.

Acknowledgements

Part of the study was presented at the joint AIMS-NZIMLS South Pacific Congress, 2011, Gold Coast, Australia. The authors wish to thank Aligarh Muslim University and the Department of Science and Technology, Ministry of Science and Technology, Government of India for providing travel assistance to M. Shahid for presenting the study.

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Performance of the BMD FIDIS™ Connective 10® ENA luminex method in external quality assurance proficiency programmes in a diagnostic laboratory setting

Paul M Austin, Helena T Thompson and Anthony R Brown

Abstract

Objective: Despite the availability of luminex technology in the format of a commercial in-vitro diagnostic assay for anti-ENA detection, it is in routine use in only a small proportion of clinical laboratories. The purpose of this study was to establish the diagnostic performance of the BMD Connective 10® (C10®) assay by reviewing the results from two independent (RCPA and UKNEQAS) EQA programmes over a three year period when placed into a routine diagnostic testing environment.

Methods: Anti-ENA results (n=78 analytes) from two EQA programmes submitted over the years 2007 – 2009 as partial fulfilment of the laboratory quality assurance systems were reviewed for compliance against target results. In addition, a representative (20% of the review period) group of routine assay quality control was reviewed.

Results: For routine quality control the range of precision using multi-constituent controls across all ENA antigens was 10-17% CV. These results compared favourably with the kit supplied positive control (15% CV). Combining both EQA programs, the assay delivered 92% compliance (76/78) against target results. The two non-compliant results were two specimens from the RCPA programme reactive for PM-Scl. Non-detection of PM-Scl was an expected outcome as this antigen was not present in the panel.

Conclusion: This retrospective review proves that under the conditions encountered in a routine diagnostic testing environment the C10® assay can consistently and reliably detect antibodies directed against SSA, SSB, Ro 52, Sm, Sm/RNP, Scl-70, Jo-1 and Ribo-P. In addition to excellent sensitivity against the defined antigens, the assay, on an evidence based approach, despite the limitation of small sample size, demonstrated good specificity.

Keywords: ENA, EQA performance, BMD Connective 10® (C10®) luminex assay.

N Z J Med Lab Sci 2012; 66 (1): 8-13

Introduction

Typically, detection of autoantibodies directed against extractable nuclear antigen's (ENA) is a second-round set of analyses following a reactive anti-nuclear antibody (ANA) test. ANA testing is performed when an autoimmune-based connective tissue disorder (CTD) is suspected where compatible symptoms are present, or to exclude a CTD where clinical features are unclear (1,2). The term 'ENA' was historically applied as the first group of auto-antibodies extracted from cell nuclei in saline. The first anti-ENA detected was Smith (Sm) in 1966 (3), followed by a number of others (RNP, SSA, SSB, Scl-70, Jo-1 and PM-1) in the years that followed (4-7). Although anti-ENA testing adds specificity to the laboratory diagnosis of CTD's, there is considerable overlap in the frequency of auto-antibodies within any one CTD. An example of these overlap phenomena is that while 70% of patients with Sjogren's syndrome will be reactive for anti-SSA, so too will 50% of patients with SLE (8).

Despite the overlap of ENA's across CTD's four of the antibodies are considered as diagnostic markers for SLE (Sm and Ribo-P), PSS (Scl-70) and autoimmune myositis (Jo-1) due to their high diagnostic specificity for those diseases (9). Reporting of reactive results for any of the markers may have significant impact on the clinical characterisation and subsequent treatment of patients. Therefore, methodologies for anti-ENA testing should ideally demonstrate consistently high diagnostic specificity and clinically relevant levels of sensitivity across the range of markers.

Briefly, luminex methodology is based on the principles of flow cytometry where dye (of varying concentration) impregnated microspheres are coated with antigens under investigation. After sample addition, washing and conjugate addition steps, beads are passed in single file in sheath fluid, where they are intersected by red and green lasers. Red lasers indentify the antigen coated microsphere and the green laser detects the presence or absence of a fluorchrome. Multiple readings per bead are made to assist assay accuracy (10). Although luminex is potentially a powerful diagnostic tool, few clinical diagnostic laboratories employ this methodology (Table 1, Figure 1). A recent trend of laboratories has been to use at least two methodologies where in previous years, a single methodology sufficed (Table 1). This shift in methodology use is in line with a European workshop consensus statement from 1991 suggesting that two or more techniques should be used to detect all specificities with adequate efficiency (11). In 2004, Biomedical Diagnostics (BMD, France) launched a C10® panel which included the previously stated range of ENA analytes. Following a period of system familiarisation and assay validation the C10® panel was adopted at LabPLUS, Auckland Hospital for anti-ENA testing and reporting in 2006 on routine diagnostic specimens.

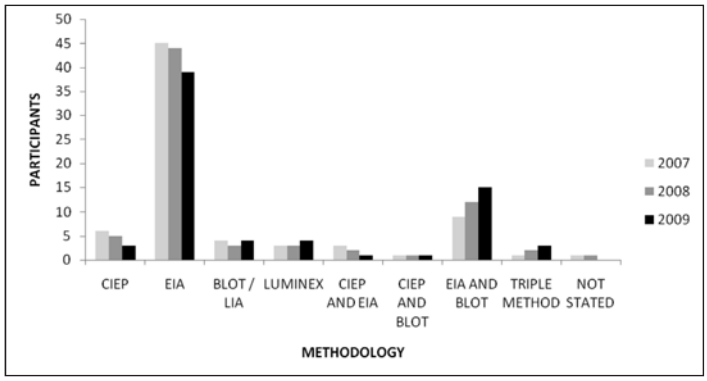
Table 1. Methodology choices over time for anti-ENA detection over as measured by participating laboratories in the RCPA Immunology rheumatic disease EQA program.

	ENA METHODOLOGY								
	CIEP	EIA	BLOT / LIA	LUMINEX	CIEP AND EIA	CIEP AND BLOT	EIA AND BLOT	TRIPLE METHODS	NOT STATED
2007	6 ± 0.4	45 ± 1.5	4 ± 0.3	3 ± 0.3	3 ± 0.2	1 ± 0.3	9 ± 3.2	1 ± 0.3	1 ± 0.2
2008	5 ± 0.4	44 ± 0.7	3 ± 0.4	3 ± 0.3	2 ± 0.2	1 ± 0.2	12 ± 0.7	2 ± 0.3	1 ± 0.3
2009	6 ± 0.4	39 ± 0.2	4 ± 0.3	4 ± 0.4	1 ± 0.1	1 ± 0.4	15 ± 0.5	3 ± 0.5	< 1

Figures in the body of the table are participant mean numbers ± standard errors. Shaded blocks indicate methodology options undergoing change. CIEP = counter-immune electrophoresis. EIA = enzyme immunoassay. BLOT / LIA = line blot / immunoassay.

The duality of (a) an absence of a 'gold standard' methodology and (b) the overlap phenomena of anti-ENA's across multiple CTD's means that the clinical presentation of the patient is the most critical diagnostic element and, in general, the results of anti-ENA testing serve to either confirm or exclude the clinical diagnosis. It follows, that a valid measure of assay performance in the routine diagnostic laboratory setting is the assessment over time in external quality assurance proficiency (EQA) programmes. The purpose of this study was to determine the diagnostic performance of the C10® assay over a consecutive three year (2007-2009) period by a retrospective review of results from two independent (Australian based RCPA and British based UKNEQAS) autoimmune EQA programmes.

Figure 1. Comparative use of anti-ENA methodology over a three year period by participating laboratories in the RCPA Immunology rheumatic disease EQA module.



CIEP = counter-immune electrophoresis. EIA = enzyme immunoassay. BLOT / LIA = line blot / immunoassay

Materials and methods

ENA antibody testing

Using luminex technology, whose principle has been previously described under the Introduction section, the C10® assay was used according to manufacturer's instructions. Composition of the C10® assay for ENA antibody testing is presented in Table 2. The processing environment was automated, whereby specimen dilutions and all subsequent assay steps were performed by the BMD CARIS™ four-probe pipetting platform modified to hold a vacuum manifold for wash steps. The FIDIS™ and CARIS™ (luminex reader) were electronically linked to facilitate recognition and transfer of work lists. Upon assay completion and validation, patient results were transferred electronically via interface into the host laboratory information system (LIS). Interpretations of results were unmodified from those provided by the manufacturer (Positive: ≥ 30AU/mL).

Table 2. Composition of the BMD FIDIS™ C10® assay for anti-ENA testing.

ENA	Antigen source
SSA 60, Sm, Sm / RNP, Scl-70, Ribosomal P	Purified
Ro 52, SSB, Jo-1	Recombinant
Internal Standard beads	N/A

Quality control

The C10® assay is supplied with a single positive and negative control for assay validation. To assess individual antigen variance and to have confidence that all antigens were valid on individual batches, a range of patient derived controls were instituted. These remained in use until BMD were able to supply multi-constituent commercial controls covering the ENA range (Immunotrol 4™: SSA 60, Ro 52, SSB, Sm, Sm / RNP and Immunotrol 5™: Scl-70, Jo-1, and Ribosomal P). Data from May to December 2009 (n=72 batches) representing 20% of the total review period was extracted for review.

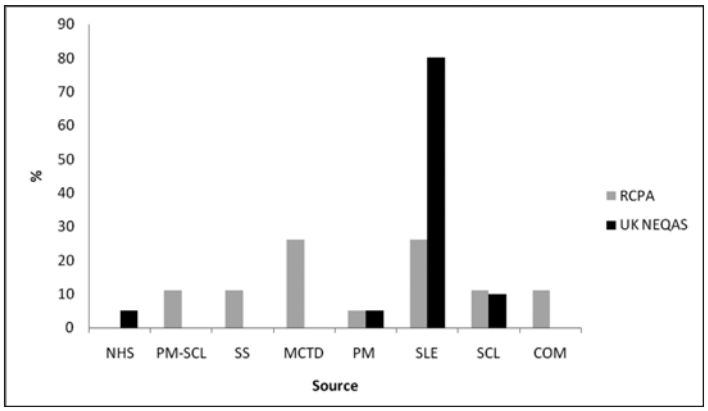
EQA programmes
Over the three year (2007-2009) review period, the laboratory routinely participated in two EQA programmes for anti-ENA detection, namely the rheumatic disease module from the Immunology RCPA (Australia) and the nuclear and related antigen module issued by UK NEQAS (England). In a calendar year, over the months February though November the RCPA programme issued eight cycles. By way of comparison, the UK NEQAS programme had six distributions per year, with two specimens per distribution (n=12). All EQA specimens were subjected to the same processing environment as the routine diagnostic patient specimens.

In the main, both programmes used single donor bleeds from patients with clinically characterised CTD's, rarely relying on commercial sources of material (RCPA: 2 / 24; UK NEQAS 2 / 36). To allow collation of results across both programmes, the target result issued by the respective EQA programmes was required for both programme compliance and result interpretation.

Eight specimens distributed by the RCPA over the three year period (33%) had no target result assigned and as such were excluded from analysis. The lack of unset target results in RCPA specimens is representative of the deliberate inclusion of 'challenging specimens' to increase the educational component of the program. With direct reference to the eight specimens they represented a mixture of (a) uncommon antigens namely anti-Mi-2 and anti-RNA polymerase III (b) sera with either transient ENA's or those having markers of unclear clinical significance and (c) a group of sera giving borderline or low positive results (personal communication: S. Jovanovich, RCPA).

Two specimens distributed by UK NEQAS were not processed as they were visually clear. Serum electrophoresis identified Albumin but no other serum protein fraction. Subsequently, it was learnt that these 'sera' were an experimental attempt to provide a clearly negative result. A notable point of difference between the programmes was the high reliance on SLE patients by UK NEQAS as compared to the RCPA programme whose characterised sources of material was wider (Figure 2).

Figure 2. Source material for anti-ENA detection as supplied by Immunology RCPA (n=19) and Immunology UK NEQAS (n=34) EQA programmes: 2007 – 2009.



NHS = Normal human serum. PM-SCL = Polymyositis-scleroderma overlap. SS = Sjogren's syndrome. MCTD = Mixed connective tissue disease. PM = Polymyositis. SLE = Systemic lupus erythematosus. SCL = Scleroderma / progressive systemic sclerosis. COM = Commercial source.

Statistical analysis
Arithmetic means, standard deviations, standard errors of the mean and percent CV's were calculated using the standard statistical package on MS Excel.

Results

Routine quality control
Precision (expressed as %CV) across all antigens was less than 20% [range 10-17%] (Table 3). Both Immunotrol™ controls are supplied in unassayed form and, in our experience, changes of C10® reagent lot requires establishment of new ranges for all analytes (Table 3). This statement is supported by the fact that the supplied kit positive control has reagent lot dependent ranges. The precision of the supplied kit positive control reflected the expressed precision of all ENA antigens (Table 3).

Table 3. Summary of routine C10® QC (BMD Immunotrol 4™ and 5™) performance over the period May to December 2009.

Reagent Lot	Statistic	Kit Positive	Ro 52	SSA	SSB	Sm	Sm/RNP	Scl-70	Jo-1	Ribo-P
XF10242 N=30	Mean	218	159	113	110	169	89	226	249	63
	SD	33	23	18	19	27	14	24	28	10
	%CV	**15**	**14**	**16**	**17**	**16**	**16**	**11**	**11**	**16**
LF102901 N=18	Mean	168	173	110	115	209	122	175	250	77
	SD	23	19	15	19	36	15	25	28	17
	%CV	14	11	14	16	17	12	14	11	15
LF104044 N=13	Mean	153	135	89	120	165	114	204	279	60
	SD	21	19	14	17	26	16	27	35	10
	%CV	14	14	16	14	16	14	13	13	16
LF103374 N=11	Mean	150	133	95	126	157	107	212	276	59
	SD	22	14	11	22	25	16	30	27	10
	%CV	15	11	12	17	16	15	14	10	17

Mean values in body of Table are AU/mL.

EQA programmes

Of the twenty-six ENA analytes encompassing SSA, SSB, RNP, Ro 52, Scl-70, Jo-1, Ribo-P and PM-Scl supplied over the three year term by the RCPA-based module, twenty-four (92%) were correctly identified by the C10® assay (Table 4). On two separate cycles in each of two years (2007 and 2008 respectively), PM-Scl was not detected. With respect to the UKNEQAS programme, all forty-five ENA analytes spanning the range SSA, SSB, RNP, Scl-70, Sm/RNP, Jo-1and Sm with a further seven negative sera (fifty-two in total) were respectively detected or not detected (Table 5). Overall, compliance with target results across both EQA programmes stood at 97% (76 / 78) with a single analyte (PM-Scl) not being identified by the C10® assay (Table 6). The single undetected analyte (PM-Scl) was not present on the C10® assay format.

Table 4. Performance of the BMD FIDIS™ C10® assay in detecting ENA antibodies in specimens provided by the RCPA Immunology rheumatic disease EQA from 2007 – 2009.

	2007		2008		2009	
Cycle	**Target result**	**Experimental result**	**Target result**	**Experimental result**	**Target result**	**Experimental result**
Feb	SSA, SSB, Scl-70	SSA, SSB, Scl-70	Jo-1, Ro 52	Jo-1, Ro 52	None set	Negative
Mar	None set	Negative	RNP	RNP	SSA, SSB, Scl-70	SSA, SSB, Scl-70
Apr	**PM-Scl**	**Negative**	SSA, Ro 52	SSA, Ro 52	None set	Negative
Jun	SSA, SSB	SSA, SSB	**PM-Scl**	**Negative**	Jo-1, Ro 52	Jo-1, Ro 52
Jul	Jo-1	Jo-1	None set	Sm/RNP	None set	Negative
Aug	SSA	SSA	SSA, Scl-70	SSA, Scl-70	None set	Negative
Oct	None set	Scl-70	Ribo-P	Ribo-P	None set	Negative
Nov	RNP	RNP	RNP	RNP	SSA, SSB	SSA, SSB

Table 5. Performance of the BMD FIDIS™ C10® assay in detecting ENA antibodies in specimens provided by the UKNEQAS nuclear and related antigens EQA from 2007 – 2009.

	2007		2008		2009	
Cycle	Target result	Experimental result	Target result	Experimental result	Target result	Experimental result
Mar	RNP SSA, SSB	RNP SSA, SSB	RNP, Negative	RNP, Negative	SSA,SSB (x2), Sm	SSA,SSB (x2), Sm
May	SSA, SSB, Sm/RNP	SSA, SSB, Sm/RNP	RNP, Negative	RNP, Negative	SSA, SSB, Scl-70	SSA, SSB, Scl-70
Jul	Negative, Jo-1	Negative, Jo-1	Sm/RNP, Negative	Sm/RNP, Negative	SSA, SSB, RNP	SSA, SSB, RNP
Aug	SSA, SSB, Sm/RNP	SSA, SSB, Sm/RNP	Scl-70, SSA, SSB	Scl-70, SSA, SSB	Sm/RNP, SSA, SSB	Sm/RNP, SSA, SSB
Oct	Negative, SSA	Negative, SSA	RNP, Negative	RNP NT	SSA (x2), SSB, Jo-1	SSA (x2), SSB, Jo-1
Dec	SSA, SSB (x2)	SSA, SSB (x2)	RNP, Negative	RNP NT	SSA, SSB (x2)	SSA, SSB (x2)

NT = not tested.

Table 6. Summary performance of the BMD FIDIS™ C10® assay in detecting ENA antibodies in specimens provided by the UKNEQAS nuclear and related antigens and RCPA Immunology rheumatic disease EQA from 2007 – 2009

	ENA analyte										
	SSA	**SSB**	**RNP**	**Ro 52**	**Scl-70**	**Sm/ RNP**	**Jo-1**	**Negative**	**Pm - Scl**	**Sm**	**Ribo-P**
Specimens provided	23	18	9	3	5	4	5	7	2	1	1
Number identified	23	18	9	3	5	4	5	7	0	1	1
% identified	100	100	100	100	100	100	100	100	0	100	100

Discussion

The earliest methodology employed for ENA antibody detection was double diffusion [DD], dating back to 1959 (12). A variant of this methodology, counter current immuno electrophoresis [CIEP] developed almost a decade later, while having very high levels of specificity has been shown to have limited sensitivity for some antigens (13,14). With the advent of ELISA methodology, the issue of assay sensitivity was largely resolved; however, assay specificity remains problematic with antigen purity and maintenance of tertiary protein conformational structures proving to be major technological hurdles (2). Luminex or laser addressable microbead assays are one of a stable of new technologies that includes microfluidics, alternatively named 'lab on a chip' and nanobarcodes which looks to exploit the novel properties of antigen-antibody binding at the atomic level (15).

Validations or evaluations of new technologies typically take the format of running the assay in question against clinically characterised groups of patient sera and groups of normal and disease controls. When such comparisons / evaluations have been applied to the C10® assay, excellent results across all ENA analytes have been achieved (16,17). While this is an accepted model for method evaluation generating values for assay sensitivity, specificity, NPV, PPV and ROC analyses, they rarely provide information on the robustness of a method, once it has been transferred from the somewhat protected and, in cases an artificial evaluation arena into the routine diagnostic laboratory.

We believe that our study is unique in that it demonstrates the performance of the C10® assay for ENA antibody detection over an extended time frame (three years) in a non-evaluation setting. Performance bias (either negative or positive) was minimised by participation in two independent EQA programmes whose sources of patient specimens came from both Northern and Southern hemispheres.

The results of this review clearly prove that the C10® assay can consistently detect antibodies against SSA, SSB, Ro 52, Sm, RNP, Scl-70, Jo-1 and Ribo-P in a routine diagnostic laboratory setting. Not only was the sensitivity across stated analytes demonstrated, but equally important, despite the low specimen number of negative sera (n=7), assay specificity was good. Particularly in the setting of either an overlap disease or one with atypical / unclear clinical features, false positive of reporting of ENA antibodies may contribute to an incorrect diagnosis, thereby impacting negatively on appropriate clinical interventions and treatment.

From our experience in using the assay on a routine day to day basis (data not included), we have found discrimination between positive and negative results across all analytes good. Additionally, despite good EQA performance for the C10® assay, we have found value in high level scrutiny for any reactive result for Sm, Ribo-P, Scl-70 and Jo-1 for reasons previously stated. The process employed at LabPLUS before reporting is a multi-factorial one reviewing some or all of the following as appropriate: (a) ANA pattern (b) clinical notes (c) other diagnostic test results or investigations and (d) line immunoassay testing. It is our contention that for this particular group of ENA's some form of review process should be in place before reporting reactive results, irrespective of the methodology in use.

At LabPLUS, the luminex technology and C10® assay are supported by (a) experienced senior technical staff that have a strong focus on training and supervision (b) effective maintenance protocols including regular preventative maintenance provided by suitably qualified and experienced engineering support (c) use of appropriate multi-constituent commercial controls that validate individual analyte performance on a per batch basis and (d) automation of the procedure using a compatible robotic platform.

The C10® assay failed to detect specimens reactive for PM-Scl due to the absence of this analyte in the assay makeup. In late 2010, the C10® assay was upgraded (re-named Connective Profile®) to include a further three antigens, one of which was PM-Scl. Retrospective testing of the RCPA sera initially tested as negative for PM-Scl gave reactive results. Although this finding implies that the sensitivity for PM-Scl may be adequate, at LabPLUS we currently do not report this analyte as we have some concerns regarding specificity having seen a higher than expected incidence of reactivity (5-10%) per batch of patients reflexed for anti-ENA testing from a reactive ANA test.

In summary, in addition to the very good performance characteristics for the ENA antigen range described previously, implementation of the C10® assay has also provided the laboratory with a cost-effective platform that has improved reporting turnaround times. These additional benefits have been mediated through patient sera being subjected to a single assay as opposed to a screening and subsequent identification testing algorithm. With the demonstrated consistent performance over time we believe we have shown that both the luminex technology and the C10® assay have the required levels of robustness necessary to be effective tools in the clinical diagnostic laboratory. Finally, despite luminex technology having the capacity to report many analytes over and above the current range, prior to profile addition, they must pass rigorous scrutiny using appropriate disease and control groups to demonstrate that the results generated add clinical value and do not detract from an otherwise effective diagnostic in-vitro device.

Acknowledgements
We would like to thank Sue Jovanovich, Programme Manager of the RCPA Immunology EQA and Dina Patel, Deputy Director of the UKNEQAS Immunology and Immunochemistry EQA for allowing the reproduction of results from specimens issued by both programmes and tested at LabPLUS, Auckland Hospital, NZ as partial fulfilment of their routine external EQA obligations. In line with earlier communications, both Sue and Dina were afforded the opportunity to comment on the paper before submission for publication.

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Paul Austin: study conception, data analysis, substantive writing of article. Helena Thompson and Anthony Brown: substantive contribution to analytical work, review of draft article. The authors declare no conflicts of interest.

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Which journals are citing articles from the New Zealand Journal of Medical Laboratory Science?

Rob Siebers

Abstract

Background: Citations in scientific articles are references to published articles or works to acknowledge their relevance and relationship to research. The purpose of this study was to determine which articles published in the New Zealand Journal of Medical Laboratory Science have been cited during the last ten years, and by which journals.

Methods: The Scopus data base was searched for citations in the last 10 years to the New Zealand Journal of Medical Laboratory Science articles. Articles published in the New Zealand Journal of Medical Laboratory Science cited by other journals were recorded together with the citing journal and year of citation.

Results: A total of 37 articles published in the New Zealand Journal of Medical Laboratory Science were cited 57 times in international medical and biomedical journals between 2002 and 2011. About 60% of the citations were in the last 3 years with the largest number of citations in 2011 (n=16).

Conclusions: An increasingly significant number of published articles from the New Zealand Journal of Medical Laboratory Science attracted citations in the international medical and biomedical literature with the greatest increase occurring since it became open access early in 2011.

Key words: citation, journal, open access, impact factor

N Z J Med Lab Sci 2012; 66: 14-17

Introduction

Citations in scientific articles are references to published articles or works. Their prime purpose to the research being published is to acknowledge the relevance of published works of other authors and for the authors to present and discuss the relevance of their research in a concise manner. This allows readers to determine the relationship of the research with the relevant scientific literature by providing information relevant to the Introduction, Methods, and Discussion sections of the research paper.

References in published articles in biomedical journals also play a large role in determining the prestige of the journal that is being cited. More prestigious journals tend to attract and publish better quality articles. The prestige and standing of biomedical journals are indicated by their Impact Factor (IF). The IF was originally developed as a bibliographical tool to help librarians determine which journals in a specific field would be best subscribed to, given that libraries cannot, for cost and space, store every journal in its specific speciality. Nowadays, it is used by journals as a measure of its standing and each year journal editors eagerly await their new IF. It is also used by authors to choose a target journal for their work and by university promotion committees and research granting agencies in the belief it provides a reflection of research relevance and quality. The IF of a journal is calculated by dividing the number of citations to articles in that journal over the preceding two years by the number of articles published by that journal in the same time period. However, all citations are counted, including those to letters and editorials, while these types of publications are not included in the number of articles published. There have also been cases were journals have manipulated their IF, such as publishing 'year in review' articles that cites only, and every, article published by that journal in the preceding year.

Not every biomedical or science journal is covered by Thomson Reuters, the commercial publisher who compiles the IF. Currently only about 12,000 out of about 60,000 science journals worldwide are covered. The New Zealand Journal of Medical Laboratory Science is not covered in the IF list. However, it is indexed by a number of important data bases, such as Scopus, Embase, Biosis Citation Index and CINAHL (Cumulative Index to Nursing and Allied Health Literature). That, together with the fact that the New Zealand Journal of Medical Laboratory Science was made open access early last year (1) means that articles published in the journal are widely available and may now be more likely to be cited in international medical and biomedical journals.

The purpose of this study was to determine which articles published in the New Zealand Journal of Medical Laboratory Science have been cited during the last ten years, by which international journals, and to provide a base-line to determine future citations from the New Zealand Journal of Medical Laboratory Science articles.

Methods

The Scopus data base (2) was searched for the New Zealand Journal of Medical Laboratory Science (or the New Zealand Journal of Medical Laboratory Technology as it was previously known) in references and from 2002 to 2011. Articles published in the New Zealand Journal of Medical Laboratory Science and cited by other journals were recorded together with the citing journal and year of citation. Excluded were articles cited in the New Zealand Journal of Medical Laboratory Science.

Results

A total of 37 articles published in the New Zealand Journal of Medical Laboratory Science (or the New Zealand Journal Medical Laboratory Technology) were cited 57 times in international medical and biomedical journals from 2002 to 2011. These articles and citing journals are shown in Table 1.

Table 1. Citations to articles in the New Zealand Journal of Medical Laboratory Science in other journals.

1st Author & year	Reference	Citing journal and year
Aitken J. 2000	3	Australian Journal of Medical Science 2003 (2 times)
Akinbo FO. 2009	4	Tanzanian Journal of Health Research 2011
Albert T. 2002	5	Nutricion Hospitalaria 2007
Allan KL. 2003	6	Seminars in Thrombosis and Hemostasis 2011
Baker M. 2007	7	Chinese Journal of Antibiotics 2008 New Zealand Medical Journal 2007
Broad G. 2002	8	Journal of Interprofessional Care 2008
Broadbent JL. 2002	9	Scandinavian Journal of Medical Sciences in Sport 2011 Diabetologie Metabolismus Endokrinology Vyziva 2009 Annals of Clinical Biochemistry 2009
Carter MJ. 1984	10	New Zealand Journal of Zoology 2009
Chotivanich K. 2007	11	Tropical Medicine and International Health 2010 Medical Journal of the Armed Forces of India 2010
Christian C. 2008	12	American Heart Journal 2011
Delahunt B. 2004	13	Pathology 2007 New Zealand Medical Journal 2005
Denholm A. 2008	14	Seminars in Thrombosis and Hemostasis 2011
Donald JJ. 1979	15	Journal of Parasitology 2003 Antimicrobial Agents and Chemotherapy 2003
Dougherty M. 1996	16	New Zealand Journal of Zoology 2009
Elmsly CJ. 1980	17	Journal of Parasitology 2003
Evans G. 2007	18	Journal of Forensic Identification 2010
Fadheel ZH. 2008	19	American Journal of Health-System Pharmacy 2009
Gillespie J. 2003	20	New Zealand Medical Journal 2007
Henry J. 1989	21	Southern Medical Journal 2011 Journal of Clinical Microbiology 2010 Journal of Clinical Pathology 2003
Hewett R. 1999	22	Australian Journal of Medical Science 2003 and 2009
Hills S. 2002	23	Journal of Thrombosis and Haemostasis 2005
Jones LC. 1997	24	New Zealand Journal of Zoology 2009
Jones LM. 2009	25	Metabolism: Clinical and Experimental 2011
Leaver CC. 2004	26	Pathology 2011
Lowrey I. 2005	27	Clinical Laboratory 2008
Millar JR. 2007	28	Foodborne Pathogens and Disease 2011
Nelson W. 2007	29	New Zealand Medical Journal 2011
Newton L. 2006	30	Veterinary Microbiology 2010 Consultant 2009
Omoregie R. 2008	31	African Journal of Microbiology Research 2011 North American Journal of Medical Sciences 2011 Fooyin Journal of Health Sciences 2010 British Journal of Biomedical Science 2009
Omoregie R. 2009	32	Tanzanian Journal of Health Research 2011
Povall A. 2009	33	Revista Brasileira de Hematologia e Hemoterapia 2011
Siebers R. 1999	34	Journal of the Medical Library Association 2003 Emergency Medicine 2002
Siebers R. 2000	35	Journal of Minimally Invasive Gynecology 2010 Science Communication 2003 British Journal of Biomedical Science 2002
Sies C. 2006	36	International Review of Neurobiology 2007
Thomas N. 1993	37	International Journal of Laboratory Hematology 2010 and 2011 Pancreas 2010
Walker NK. 1991	38	New Zealand Journal of Zoology 2009 New Zealand Medical Journal 2002
Wood N. 1999	39	New Zealand Journal of Zoology 2009

About 60% of the citations were in the last three years (2009 – 2011) with the largest number of citations in 2011 (n=16). Figure 1 shows the trend of citations for the last 10 years.

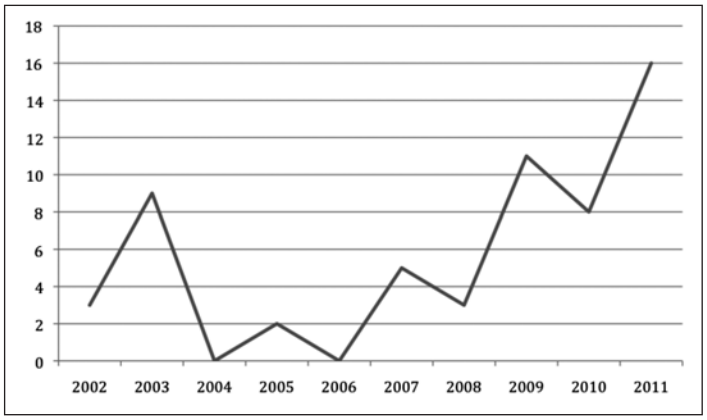

Figure 1. Number of articles (y axis) in the New Zealand Journal of Medical Laboratory Science (or Technology) cited each year in international biomedical journals.

Discussion

The prime purpose of citations to published articles is to acknowledge the relevance of that published work. On average, published articles are cited only about once in a 20 year period and about three-quarter of articles are never cited in that period. The most cited article ever is the 1951 paper of Lowry describing the measurement of protein with the Folin phenol reagent (40). This article has been cited more than 200,000 times in the literature.

This study has shown that a number of articles in the New Zealand Journal of Medical Laboratory Science are cited in the international medical and biomedical literature with an increasing trend during the last three years. Indeed, most of the citations were in the preceding year (2011) which is when the New Zealand Journal of Medical Laboratory Science became open access worldwide (1). Whether this is co-incidental will await further analysis over the coming years. Another reason for increased citation over the last three years may be due to the inclusion of the New Zealand Journal of Medical Laboratory Science in the Scopus data base in 1999. Scopus covers nearly 18,500 peer-reviewed publications with references to articles going back to 1996.

About a third of the cited articles have been cited more than once in the preceding 10 years (7,9,11,13,15,21,22,30,31,34,35,37,38) with one of these being cited four times (31). Some of the journals that have cited articles from our journal have a high international standing, such as the American Heart Journal (41) citing the article by Christian (12), Seminars in Thrombosis and Hemostasis (42) citing the articles by Allan et al (6) and Denholm et al (14), Pathology (43) citing the article by Leaver (26), and Annals of Clinical Biochemistry citing the article by Broadbent (9).

The types of articles that attracted citations covered a wide spectrum of medical laboratory science subjects. Clinical/laboratory articles and method/instrument evaluations were the most cited. Thus nine clinical/laboratory articles (4,15,17,19,25,28,31,32,38) attracted 14 citations while eight method/instrument evaluation articles (6,9,10,12,26,27,33,37) attracted 12 citations. However, case studies and review articles were also likely to be cited with five case studies (14,16,21,24,30) attracting eight citations and six review articles (11,18,20,23,27,36) attracting seven citations. Personal opinion or viewpoint articles were also cited (3,7,8,13,22,29).

A limitation of the study is that a number of authors (or co-authors) of published articles in the New Zealand Journal of Medical Laboratory Science self-cited their article in other journals (6,13,14,20,23,29,31,32,35). However, in most cases this is justified because of similar methodology, opinion, conclusions or related research in the same area.

In conclusion, despite the New Zealand Journal of Medical Laboratory Science not being covered by what is regarded as the two most important data bases for published medical and biomedical articles, namely PubMed (National Library of Medicine, USA) and the Web of Knowledge™ (Thomson Reuters, USA), a significant number of articles attracted citations in the international medical and biomedical literature. This is likely due to two reasons. First of all, the quality of the article is important and the New Zealand Journal of Medical Laboratory Science always has had, and continues to have, a rigorous peer review process to ensure not only that quality articles are accepted for publication, but also that suggestions by reviewers can significantly strengthen an already good submission. Secondly, although not covered by PubMed or the Web of Knowledge™, the New Zealand Journal of Medical Laboratory Science is covered by a number of other quality data bases (Embase, Scopus, Biosis Citation Index, CINAHL) and most importantly, became free access worldwide early in 2011. This is evidenced by the highest number of citations per year over the last decade. It remains to be seen whether this trend will continue.

Acknowledgements

The author thanks the anonymous reviewers for their thoughtful and helpful comments.

Conflicts of interest

Rob Siebers is the Editor of the New Zealand Journal of Medical Laboratory Science. The handling of this manuscript, selection of independent reviewers and ultimate decision for acceptance was undertaken by the Deputy-Editor. The author had no input in this process or decision.

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Letter to the Editor

Video conferencing

Dear Editor

I found that the recent Northshore video conference was very helpful and inexpensive. I would like to strongly encourage all other seminar organisers to consider having video conferences.

Len Dent
Shift Scientist, Whangarei Hospital Laboratory

Book Reviews

Haematology: A Core Curriculum – 1st edition by Barbara J. Bain. Imperial College Press. ISBN: 978-1-84816-499-4

This small textbook covers a variety of haematology topics over 13 chapters, from the physiology of normal blood and bone marrow, to blood transfusion and haematopoetic stem cell transplantation. Aimed primarily at medical undergraduates, but also suitable for medical laboratory science and nursing students, it follows the core curriculum recommended by the Royal College of Pathologists and the British Society of Haematology Expert Group.

Each chapter begins with a list of objectives and ends with a test case and self-assessment questions. Answers are conveniently provided at the back. There is also a chapter devoted to lists of further reading for each topic, including textbooks, journal articles and on-line resources. Information about exam technique and practice questions (multi-choice, short answer and cases) also features.

A chapter on "Things you have to know before you graduate" includes topics such as how to take a clinical history, a physical exam and what to do if you suspect a haematological disorder. A lot of this is beyond the scope of practice for medical laboratory scientists but may be of interest for those with an interest in clinical haematology.

There is a fantastic chapter on "The blood count and film", complete with definitions of terminology and a mini atlas of red cell poikilocytes. It provides a good introduction or revision for scientists new to or revisiting haematology.

There are a few short-comings. Just one chapter is devoted to all leukaemias and lymphomas, with emphasis on the outdated FAB classification rather than that of the WHO. AML in particular seems skimmed over. Likewise, with the exception of Loa loa as a cause of eosinophilia, there is no discussion of blood parasites such as malaria. However, these deficiencies may well be a reflection of the curriculum of the British medical undergraduate program.

Haematology: A Core Curriculum is accessible and well written, as we have come to expect from this esteemed author. It also features good pictures and clear diagrams. While specific detail of laboratory tests is omitted, it provides a solid theory base and clinical overview. This book may be a useful resource for medical laboratory scientists, particularly for those with an interest in the clinical practice of haematology.

Cat Ronayne, BMLSc DipGrad
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Report. Barry Edwards/Rod Kennedy Scholarship

The Institute of Biomedical Sciences (IBMS) is the British equivalent of the NZIMLS and they hold a conference every two years in the ICC in Birmingham. As the fortunate recipient of the Barrie Edwards and Rod Kennedy Scholarship, I chose this conference to present my poster titled "The evaluation of new red cell parameters on the Sysmex XE-5000". The ICC is a modern multi-level conference centre that had just hosted the Conservative Party conference the previous week. Over 3400 delegates attended the three day conference.

After registering on the Sunday evening I attended the welcome function, which ironically, was held in an Australian themed pub opposite the ICC. All overseas delegates had been invited to meet members of the IBMS committee on Tuesday lunchtime but that was when I had to present my poster. However, by chance I started chatting to people on one table and they turned out to be IBMS committee members, including the new CEO, Jill Rodney, who interestingly actually has a pharmacy background.

The Congress began on Monday morning with nine concurrent sessions in cellular pathology, clinical chemistry, cytopathology, education, training and management, haematology, immunology, microbiology, transfusion science and virology.

The haematology session began with Dr Ian Mackie reviewing ADAMTS-13, the metalloprotease responsible for cleaving von Willebrand factor (vWF). In congenital or acquired ADAMTS-13 deficiency (<10%) the long vWF multimers activate circulating platelets, which in turn get deposited in blood vessels, leading to thrombotic thrombocytopenia purpura (TTP). The various assays available to measure ADAMTS-13 were compared and he concluded that all were good at the low and normal levels but varied at intermediate levels. Dr Mackie concluded that it was still an assay that should be performed in a specialised lab.

Dr Chris Gardiner then discussed the pros and cons of point of care (POC) testing kits. There are over 2.5 million people on warfarin for atrial fibrillation in the UK, many using home testing kits. Studies showed that the majority of the kits had CVs similar to laboratory tests, although some had been taken off the market because of poor reliability or calibration. A 5 year study showed that self monitored patients were better controlled than a group getting regular tests in hospital labs.

Coffee break was just that – no food, just coffee, so ensure you have a good breakfast before attending this conference! Professor Edward Tuddenham then spoke about gene therapy for haemophilia. In the UK treatment with recombinant Factor IX concentrate costs over £100,000 for each patient with severe Factor IX deficiency. He discussed the current trial at the Royal Free Hospital in London where the Factor IX gene has been inserted into the genome of adeno-associated virus AAV-8. This is a non-pathogenic DNA parvovirus that acts as a vector for the gene. Once in the liver, the hepatocytes start to express the gene and produce Factor IX. Results have been promising in five out of six patients, who normally have levels <1%. Sustained levels have been achieved of 2-4% which means much less prophylactic treatment with concentrates.

The next speaker was Dr Gary Moore who discussed guidelines for lupus anticoagulant testing in the UK, followed by Professor Mike Greaves who talked about thrombophilia testing and how generally it is a waste of time.

Lunch was served on three levels of the ICC – a choice of a hot meal, salad or sandwich. There was never anything sweet but there were plenty of chocolates to temp you at the trade exhibitor's stands. The mind boggling trade display was spread over two levels of the ICC with 137 exhibitors. Even with a two hour lunch break it was only possible to visit a fraction of the stands.Some of the best enticements included a barista at the Roche stand and two mixologists making cocktails at the Beckman Coulter stand. However, the most popular was on the Alere Diagnostics stand where they had a very funny Ali G impersonator. Interestingly, some of the larger companies such as Roche and Abbott had no analysers at all on display and just had PCs to view their wares. In my particular area of interest, Beckman Coulter had their UniCel DxH 800 on display and Sysmex were launching their new XN series analysers.

The official opening ceremony took place after lunch with a welcome from IBMS President Ken Rae and then Vice President Alan Potter gave the Albert Norman lecture about early microscopy and Victorian enthusiasts who used to have private slide collections.

The rest of the afternoon was a plenary session involving several speakers from across the pathology spectrum. Under discussion were the changes which have been forced on laboratory services in the UK. An independent review of pathology services was chaired by Lord Carter in 2008 and in 2010 the NHS launched the Quality, Innovation, Productivity and Prevention (QIPP) programme to try and maximise the benefit and quality of each pound spent on healthcare, with an aim to save £20 billion by 2015. Consequently, laboratories now have to save between 20% and 25% of their annual budget. Nick Kirk, the Pathology Director at Papworth Hospital, is a member of the Pathology Transformation Board of the East England Strategic Health Authority. He said that they looked at various solutions including a "mega-lab" to service routine testing for 5 million people but this was rejected due to the costs of infrastructure and transport. Rather, they are looking to consolidate laboratory services within each area and standardise equipment and IT systems. Wage freezes are in place, salary bands are being compressed and many positions disestablished. In many ways this echoes the restructuring that has happened over here in the past few years. With very few private labs in the UK, the big international companies are looking to get in the UK market and compete with the hospitals.

In the evening the President's Reception was held at the nearby Museum and Art Gallery. There were drinks and a buffet meal and a chance to look around the museum. On display was part of the Staffordshire Hoard, which is the largest find of Anglo-Saxon gold, uncovered in a field in 2009.

Tuesday's haematology sessions took place across the sky bridge at the Hyatt Hotel.
It began with a morphology quiz – there were 10 blood films and each person had a remote voting device. We were asked to vote on the most prominent feature first and then choose the best diagnosis from 10 choices. The slides were quite tricky, including two with mixed malarial infections and the eventual winner got 8 out of 10 correct.

After tea there were short papers, the first speaker from NEQAS talking about Harmony, a project trying to standardise haematology ranges and units throughout the UK. There are still 83% of UK labs reporting haemoglobins in g/dL. The second talk was about the use of flow cytometry to measure minimal residual disease in chronic lymphocytic leukaemia (CLL). CD160 is a glycoprotein marker found on natural killer cells but not found on stem cells or mature B cells. It is positive in CLL and hairy cell leukaemia and so if no CD160 is found, the patient is thought to be a complete remission.The third paper was about interpretation of HPLC traces in haemoglobin variants.

I had to stand dutifully by my poster over lunchtime but fortunately nobody asked me any tricky questions.

After lunch the first paper was on testing for non-responders to Clopidogrel. This is a drug used to treat patients with acute coronary syndrome. It blocks ADP binding to platelet receptor P2Y12 and inhibits platelet aggregation and micro thrombus formation. Clopidogrel is metabolised in the body by CYP450 enzymes to become active but between 10 – 30% of patients have a variant of the CYP2C19 enzyme and so are poor responders to the drug. Evaluation drug response was investigated by multiple electrode aggregometry and genotype analysis using Taqman PCR.

The next talk was about the heat shock protein HSPA1A. It is increased during stress and helps protects protein structure. Red cells were incubated with HSPA1A and warmed up to 40ºC without causing any haemolysis and it has also been shown to reduce red cell osmotic fragility.

The third talk was about methods to measure JAK2. This protein regulates cellular proliferation and the mutant form (JAK2 V617F) is found in 57% of patients with essential thrombocythaemia and primary myelofibrosis and in 95% of patients with polycythaemia vera. In the speaker's opinion the most sensitive and least labour intensive method is PCR followed by high resolution melt curve analysis.

The final talk of the session was Dr John Old from the National Haemoglobinopathy Reference Laboratory in Oxford. He began with his assessment of the Sebia capillary electrophoresis system. This gives clearer peaks than traditional HPLC, can separate HbE and Hb Lepore from HbA2 and can separate and quantitate HbH and Hb Barts. The disadvantages of this system include no retention times and the need to have run HbA in order to identify HbS. Dr Old said that they were able to identify 39 out of 40 difficult cases referred to them by a combination of HPLC retention times and isoelectric Focussing. They also received 180 samples last year for prenatal diagnosis. They use pyrosequencing to detect known haemoglobin mutations – currently there are 68 different types of beta thalassaemia in the UK. In the future he thought that screening will be done by mass spectrometry and that DNA sequencing will get faster and cheaper to use. He also thought that prenatal diagnosis would be performed on maternal plasma, utilising free foetal DNA, without the need for invasive procedures such as chorionic villus biopsy or amniocentesis.

I attended a transfusion science session at the end of the day outlining the history of reagent and blood product development from the first plasma given to dogs for shock in 1918 to bioengineered clotting factors used today. Along the way anti-A typing serum was produced from snail gonads and fresh frozen plasma was first used during the Vietnam War.

The last social event was the Company Member's Evening, held at Bar Risa opposite the ICC, which included a Queen Tribute band (the one with Freddy Mercury not the one on the stamps!).

The final day's session started with a look at the genetics behind the pathogenesis of myeloproliferative neoplasms and some of the new therapies targeting JAK2 mutation inhibition. The second paper was on the importance of cytogenetic makers in childhood acute leukaemias and how they are being used as prognostic indicators and how they differ from adult leukaemias.

After tea Prof. Marion Macey outlined the latest BCSH guidelines for multicolour flow cytometry. They are now using up to six fluorochromes which allow for quicker analysis, with less sample required and can be used to measure minimal residual disease. Disadvantages include more complex fluorochromes, higher instrument costs, interference between flurochromes where the binding sites are close together, need for better data analysis tools and lack of standardisation between labs. In the future she thought flow cytometers would be much smaller with standardised cartridges allowing assays like CD4 counts to be done in 30 minutes.

Dr Andrew Blann then talked about other uses for flow cytometry. He is looking at combinations of CD14, CD16 and CCR2 markers to differentiate monocytes into 3 subgroups. In stable myocardial infarction (MI), levels of subgroup 1 and 2 are normal but levels are increased in unstable MI. So these subgroups may be used for prognosis of heart disease in the future. He is also looking at platelet activation markers PAC-1 and CD62p. If there is internal bleeding during MI the CD62p levels increase but not PAC-1.

The fist afternoon talk was from Dr Joseph Chacko who reviewed classification and diagnosis of myelodysplastic syndromes. Two new drugs, Azacitidine and Lenalidomide have shown good results in extending life expectancy in these patients.
The final talk was from Prof. Victor Hoffbrand who discussed his long career in haematology and how techniques have evolved from the early microbiological red cell folate assays that he helped develop, to today's genetic microarray panels.

The conference ended with a plenary session with guest speaker Dr Pixie McKenna from Britain's Channel 4 programme "Embarrassing Bodies". It was an amusing end to the conference, with clips from the show and she praised the work that laboratory scientists do and how they couldn't have a show without us.

So I would like to thank the Institute for this great opportunity to attend this conference and so would my 90 year old mother, who was very pleased to see me.

Bernard Chambers
Middlemore Hospital, Auckland

Retraction of article

Parsian H, Nouri M, Somi MH, Rahimipour A, Qujeq D, Estakhri R, Fard MK, Agcheli K, Majidi G. Attenuation of serum laminin concentrations upon treatment of chronic hepatitis. N Z J Med Lab Sci 2009; 63 (1): 12-17.

The above named article has been retracted from the New Zealand Journal of Medical Laboratory Science.

It came to our attention that a paper by the same authors appeared in the Journal of Gastrointestinal and Liver Diseases (Parsian H, Rahimipour A, Nouri M, Somi MH, Qujeq D, Fard MK, Agcheli K. Serum hyaluronic acid and laminin as biomarkers in liver fibrosis. J Gastrointestin Liver Dis 2010; 19 (2): 169-174) that was similar in many aspects to their article in our journal. These similarities were:

- The patient group was identical in all aspects including inclusion criteria, histological assessment, treatment and follow up.
- The control group was identical in all aspects.
- Mean serum laminin levels between patients and controls were virtually identical in both articles.
- Characteristics of the patient and control groups were identical for gender and age but differed to some degree for ALT, AST, Alkaline Phosphatase and platelet count in the patient group, but not in the control group.
- Serum laminin levels were identical in all subgroups before treatment, but were somewhat different for fibrosis stage 0 at 2, 4 and 6 months treatment.
- ROC curves and data derived there from were identical for serum laminin in both articles.

According to guidelines from the Committee on Publication Ethics (COPE) and the World Association of Medical Editors (WAME) this amounts to substantial self-plagiarism which is not allowed and requires either a retraction or redundant publication notification. Due to the fact that there were differences in various laboratory parameters in the patient groups, despite being totally identical, requires our journal to retract the article rather than issue a notice of redundant publication as we cannot guarantee that their results in both journals are correct.
The authors' article in the Journal of Gastrointestinal and Liver Diseases is simultaneously being retracted.

The authors of both articles have been advised of the retraction notices and the reasons why. The 1st author of both articles, Dr H Parsian apologised and stated he did not realise that he required our journal's permission, as copyright holder of the article, to insert significant parts of a previous manuscript in another manuscript. The fact remains that he and his senior co-authors signed a letter to the Journal of Gastrointestinal and Liver Diseases stating that the manuscript they submitted had not previously been published in full or in substantial part when in fact the majority of the work had previously been published in the New Zealand Journal of medical laboratory Science.

We regret having to take this action. Articles submitted to the journal require substantial resources in editorial and reviewers' time and commitment. However, plagiarism, including self-plagiarism is absolutely not allowed and has the potential to distort the literature.

Rob Siebers, FNZIMLS FSB
Editor, New Zealand Journal of Medical Laboratory Science

Correction of article

Siebers R, Hewett R. The New Zealand Institute of Medical Laboratory Science and the services it provides. How well does it perform? *N Z J Med Lab Sci 2011; 65: 89-91.*

The authors of this article have advised the journal that due to a flaw in the statistical package used, the mean score ratings in Tables 1 and 2 were not correct and therefore the conclusions derived from the data were not accurate. Below are the correct mean score ratings and revised conclusions. Comparative data from the 2006 survey were accurate.

Table 1. NZIMLS services and activities ratings. 2011 compared to 2006.

NZIMLS services	2011 mean score	2006 mean score
Journal	6.8	7.0
Newsletter	6.9	6.8
SIG seminars	7.8	8.5
ASM	7.2	7.7
Organisational structure	7.2	7.1
Sponsorship	6.7	6.3
Promotion of profession	6.0	5.9
Web site	7.8	7.6
CPD programme	7.7	7.1
Executive Office services	7.2	7.3
QMLT/QSST examinations	7.0	7.5
NZIMLS Fellowship	6.6	6.1

Table 2. NZIMLS activities of importance to members. 2011 compared to 2006.

NZIMLS activities of importance to members	2011 mean score	2006 mean score
Journal publication	7.5	7.5
Continuing education	8.8	8.5
Council governance	7.1	6.9
ASM	8.0	7.8
Special Interest Groups	8.0	8.8
Promotion of profession	8.8	8.7
Web site	8.3	8.3
CPD programme	7.5	8.5
QMLT/QSST examinations	7.0	7.7
NZIMLS Fellowship	5.4	6.1
BMLSc representation	8.6	8.4

Discussion

The mean ratings of the services and activities that the NZIMLS provides ranged from 6.0 to 7.8. However, there was a wide spread of ratings within each category. Top ratings (mean score of ≥7.5) were for the SIG seminars, web site and the CPD programme. Bottom rating was for promotion of the profession. Comparatively, in 2006 the SIG seminars, Annual Scientific Meetings, the web site and technician examinations achieved top ratings while promotion of the profession and Fellowship were ranked at the bottom then.

Top activities of importance to members in 2011 (mean score of ≥7.5) were journal publication, continuing education, Annual Scientific meetings, Special Interest Groups, promotion of the profession, the web site, CPD programme and BMLSc representation. Bottom rating was Fellowship.

Fellowship of the New Zealand Institute of Medical Laboratory Science

The NZIMLS encourages members to consider Fellowship as an option for advancing their knowledge and career prospects. Fellowship provides an attractive option to academic postgraduate degrees at a fraction of the cost.

Fellowship of the NZIMLS may be gained by examination, by thesis or by peer-reviewed publications.

Examination

Consists of two parts:

a) Part 1: Two written papers each of three hours duration
b) Part 2: Upon successful completion of Part 1 a dissertation of 3000 - 5000 words

The dissertation may take the form of a review, development of a hypothesis or any other presentation that meets with the approval of the Fellowship Committee.

Thesis

The thesis must be based on the style of Master of Science by Thesis requirements of New Zealand Universities and not exceed 20,000 words.

Publications

A minimum of seven peer-reviewed publications, of which the candidate must be first author of at least four, may be submitted for consideration. These need to have been published in international or discipline acknowledged scientific journals. A review of the submitted articles of 3000 – 5000 words must also be submitted. The candidate must state the contributions he or she made to the publications.

Exemption

Candidates who are holders of postgraduate or professional qualifications in Medical Laboratory Science may be exempt from the Part 1examinations but are still required to submit a dissertation for Fellowship.

Qualifications recognised by the NZIMLS for the purpose of exemption to sit the Part 1 examinations are:

- Fellowship of the Australian Institute of Medical Scientists (FAIMS), the Institute of Biomedical Science (FIBMS) and the Australasian Association of Clinical Biochemists (FAACB)
- An academic postgraduate qualification, normally at least a postgraduate diploma, in medical laboratory science or closely related subject. The course of study must meet the minimum requirement of one year's full-time study

For full Fellowship regulations and the application process visit the NZIMLS web site: www.nzimls.org.nz or contact the Fellowship Committee Chair: Associate Professor Rob Siebers at rob.siebers@otago.ac.nz

For full Fellowship regulations and the application process visit the NZIMLS web site: www.nzimls.org.nz or contact the Fellowship Committee Chair: Associate Professor Rob Siebers at rob.siebers@otago.ac.nz

The Olympus Journal Imaging Competition

The NZIMLS Journal invites applications for the annual Olympus photo competition giving NZIMLS members the chance to win an Olympus digital camera and have their photo published in the journal.

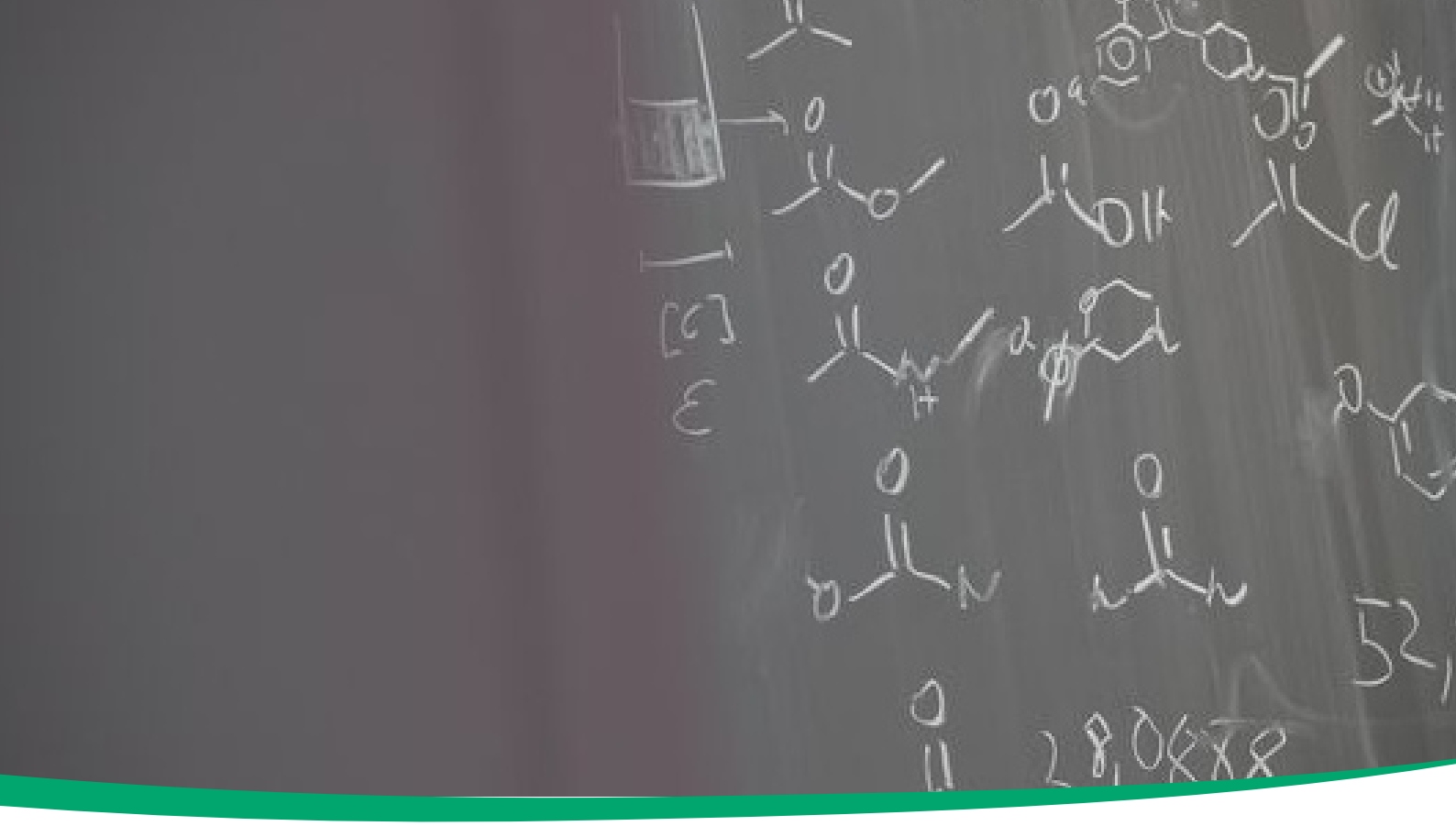
The general theme is "Medical Laboratory Science", so whether it is related to haematology / histology, laboratory personnel, instruments, humour, or other, there's plenty of scope for keen photographers to showcase their talents.

Olympus, a leading manufacturer of professional opto-digital products, has generously donated a digital camera as the prize for the best photo.

Entries should be submitted as an email attachment to Rob Siebers, Editor of the NZIMLS Journal, at rob.siebers@otago.ac.nz. A title for the photo, together with the entrant's name, place of work and email address, should accompany the attachment. Submissions can be in colour or black and white.

Entries close on **5pm on Friday 14th September 2012**, with the winning photo appearing in the November 2012 issue of the Journal. Previously submitted entries will not be considered.

Judging will be carried out by the Editor, the Deputy-Editor and an Olympus representative. Their decision will be final and no correspondence will be entered into. Entrants must be current financial members of the NZIMLS to be eligible.



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New Zealand Institute of Medical Laboratory Science

The Barrie Edwards & Rod Kennedy Scholarships

The Barrie Edwards & Rod Kennedy scholarships are some of the most significant awards offered by the NZIMLS. The two scholarships provide winners with support to attend an international or national scientific meeting up to a maximum value of $7,500 for each.

Applications for these prestigious scholarships are invited from Fellows, Members and Associate Members of the NZIMLS. Applicants must be a current financial member of the NZIMLS and have been a financial member for at least two concurrent years prior to application. To be eligible applicants must make an oral presentation or present a poster as 1st author at their nominated scientific meeting.

All applications will be considered by a panel consisting of the President and Vice-President of the NZIMLS and the Editor of the New Zealand Journal of Medical Laboratory Science (who are ineligible to apply for the scholarships). The applications will be judged on your professional and academic abilities together with your participation in the profession. The panel's decision is final and no correspondence will be entered into.

Application is by letter. Please address all correspondence to:

NZIMLS Executive Officer
PO Box 505
Rangiora 7440

There may be two scholarships awarded in each calendar year. Closing dates are - June 30th and December 20th in any given year.

In your application letter please provide the following details:

- Full name, position, work address, email address and contact phone number
- The length of time you have been a financial member of the NZIMLS
- The conference you wish to attend - please provide dates
- A budget comprising airfares, conference registration and accommodation costs
- The abstract of your intended oral or poster presentation and whether it has been accepted for presentation (proof required)
- Your intentions to publish your results
- State briefly your history of participation in the profession over the last 5 years
- State the reasons why you wish to attend your nominated scientific meeting

Successful applicants will be required to provide a full written report on return which will be published in the Journal. If not intended to publish elsewhere, successful applicants will be required to submit their study results for consideration by the New Zealand Journal of Medical Laboratory Science.

Journal reviewers 2010/2011

The Editors would like to thank the individuals listed below for refereeing articles submitted to the Journal from September 2010 to August 2011, some more than once. All submitted articles undergo peer review in order that the Journal maintains its high standard. Additionally, thoughtful comments and suggestions made by referees help authors in ensuring that their article, if accepted, is put in front of the reader in the best possible light. The Editors and Editorial Board Members cannot be experts in all disciplines of medical laboratory science and thus rely on quality peer review by referees.

Not all articles submitted to the Journal are accepted for publication. In the last five years about 20% have been rejected as being scientifically unsound, not novel enough, not applicable to the broad subject of medical laboratory science, contain plagiarised material or have previously been published in other journals. Duplicate publication is absolutely not allowed.

Reviewers 2010/2011
Tony Barnett, Nelson
Indira Basu, Auckland
Nicki Beamish, Wellington
Mary Bilkey, Auckland
Jacqueline Case, Auckland
Maree Gillies, Auckland
Margaret Hammond, Auckland
Mark Jones, Wellington
Mike Legge, Dunedin
Lesley Newton, Christchurch
Mary Nulsen, Palmerston North
Graeme Paltridge, Christchurch
Rob Siebers, Wellington

We also thank the Journal's Statistical Editor, Nevil Pierse, for his thoughtful review of statistics in submitted articles and Members of the Editorial Board for their advice and guidance.

Rob Siebers, FNZIMLS, Editor
Terry Taylor, MNZIMLS, Deputy-Editor

Journal questionnaire

Below are 10 questions based on articles in the April 2012 Journal issue. Read the articles fully and carefully, most questions require more than one answer.

Answers are to be submitted through the NZIMLS web site. Make sure you supply your correct email address and membership number. It is recommended that you write your answers in a word document and then cut and paste your answers on the web site.

The site has been developed for use with Microsoft's Internet Explorer web browser. If you are having problems submitting your questionnaire and you are using the Firefox web browser, try resubmitting from a computer or system using Microsoft's Internet Explorer.

You are reminded that to claim valid CPD points for successfully completing the Journal questionnaire you must submit an individual entry. It must not be part of a consultative or group process. In addition, members who have successfully completed the Journal questionnaire can only claim 5 CPD points. You can not then claim additional CPD points for reading the articles from which the questions were derived.

The site will remain open until Friday 6th July 2012. You must get a minimum of 8 questions right to obtain 5 CPD points.

The CPD Co-ordinator Jillian Broadbent now marks the journal questionnaire, not the Editor. Please direct any queries to her at cpd@nzimls.org.nz.

April 2012 journal questions

1. What are KPC-carbapenemases capable of hydrolysing.
2. How many Gram-negative isolates were reported as resistant to carbapenem and what were these organisms.
3. Give an example of overlap in the frequency of auto-antibodies within any one autoimmune-based connective tissue disorder.
4. When is an anti-nuclear antibody (ANA) test performed.
5. Which antibodies are considered as diagnostic markers for SLE, PSS and autoimmune myositis.
6. What should methodologies for anti-ENA testing ideally demonstrate.
7. What is a valid measure of assay performance in the routine diagnostic laboratory setting.
8. What is the prime purpose of references in published articles.
9. What is the most cited article ever and what did it describe.
10. Describe self-plagiarism.

Questions and answers for the November 2011 journal questionnaire

1. As well as linking solvent exposure to Raynaud's Phenonemon and connective tissue disease, what else can solvent exposure cause.
   Central neurotoxicity, peripheral neuropathy, acute poisoning and contact dermatitis.
2. Chromogenic media allow for the detection of which bacterial enzymes.
   -glucosidase (-GLU), -galactosidase (-GAL) and tryptophan deaminase (TDA).
3. Which microorganism was the primary isolate in the urinary tract pathogen study and which two were the next prevalent isolates.
   ***E. coli* was the primary isolate in the study, followed by the KESC group and *Enterococcus* spp.**
4. What is the gold standard for the diagnosis of urinary tract infections.
   The quantitative culture of urine samples on solid media.
5. Name the types of cancer in which blood alpha fetoprotein levels are raised.
   Liver, germ cell testicular, bowel, stomach, lung, breast and lymphomas.
6. Cancer Antigen 19-9 is synthesized by which cells.
   By normal pancreatic, biliary duct, gastric, colon, endometrial and salivary epithelial cells.
7. What determines the antigenic specificity of the particular antibody molecules.
   The amino acid sequences of the variable regions at the N-terminal ends of the four chains.
8. Which is the only immunoglobulin that can cross the placental barrier and because of this, what does it provide.
   IgG. It provides passive immune protection for the fetus and newborn.
9. What does a low number of LGL/NK cells in blood indicate.
   That the ability of immune system to recognize virus infected cells and certain tumor cells may have been compromised.
10. What is common variable immunodeficiency (CVID) characterized by.
    By a low level of serum immunoglobulins and an increased susceptibility to infections.

NZIMLS Journal Prize

Council of the NZIMLS has approved an annual Journal prize ($300) for the best case study published in the Journal during the calendar year.

Case studies bring together laboratory results with the patient's medical condition and are very educational. Many such studies are presented at the Annual Scientific Meeting, SIG meetings, and the North and South Island Seminars, yet are rarely submitted to the Journal for wider dissemination to the profession. Consider submitting your case study presentation to the Journal. If accepted, you are in consideration for the NZIMLS Journal Prize and will also earn you CPD points. Please contact the Editor or any Editorial Board Member for advice and help. Contact details are on the NZIMLS web site (www.nzimls.org.nz) as are instructions to authors. Refer to the article "How to write a laboratory-based case study for the journal" published in the April 2010 issue of the journal, pages 22-23, for guidance.

No formal application is necessary but you must be a financial member of the NZIMLS during the calendar year to be eligible. All case studies accepted and published during the calendar year (April, August and November issues) will be considered. The Editor, Deputy Editor and the President of the NZIMLS will judge all eligible articles in December each calendar year. Their decision will be final and no correspondence will be entered into.

Winner of the NZIMLS Journal prize for 2011 was Roberto Mazzachi of LabPlus, Auckland for the article: A non-mosaic ring chromosome 9 in a newborn baby referred for ambiguous genitalia: a case study. N Z J Med Lab Sci 2011; 65: 60-62.

Biochemistry: Under the Mountain, Next to the Sea

Biochemistry Special Interest Group Meeting
Saturday 9 June 2012
Quality Hotel Plymouth International
Cnr Courtenay & Leach Street New Plymouth

Registration and coffee 9.30am, start 10.00am, approx finish 5pm, dinner 7pm

Presentations on Special Chemistry, Toxicology, POCT, Automation, Chromatography, Endocrinology, Quality, Immunology, Proteins, Lipids, Nucleic Acid, etc are welcomed.

Prizes for Best Presentation and Best First Time Presenter

Contact Sandy Woods: NZIMLS BSIG coordinator
sandy.woods@cdhb.govt.nz

Online registration will be available at
www.nzimls.org.nz

NZIMLS
THE NEW ZEALAND INSTITUTE OF MEDICAL LABORATORY SCIENCE (INC)

NORTH ISLAND SEMINAR

Saturday 12 May 2012
Brooklyn 1 & 2
Claudelands Event Centre
Hamilton

NZIMLS
THE NEW ZEALAND INSTITUTE OF MEDICAL LABORATORY SCIENCE (INC)

- Registration and Coffee from 8.00am
- Scientific Programme begins 9.00am sharp
- Lunch 1230pm – 1.30pm
- Programme ends approx 5pm
- Dinner at Claudelands 7pm

Presentations wanted
please contact Jan Bird at Jan.Bird@pathlab.co.nz

Prizes for best presentation and best first time presenter

On line registration is available at
www.nzimls.org.nz

Greetings from the PPTC

The PPTC extends to you the very best wishes for this new year and is once again looking forward to working with you all on the many projects scheduled for 2012.

Courses held at the Centre at the end of 2011

Blood Bank Course 31st October to 25th November 2011
In November 2011, the PPTC provided a Blood Bank course to Pacific students nominated to attend and as always it proved to be a great success. The course included units of study covering the theoretical and practical aspects of the following topics; routine blood grouping, blood group antigens, crossmatch techniques, antibody detection, transfusion reactions, haemolytic disease of the newborn, screening blood for infectious agents, blood donor selection, organisation of a blood bank and the appropriate use of blood components in transfusion medicine. Practical sessions were also provided, focusing on correct technique and fundamental basic procedure. One week of the course was set aside for an overview of current techniques in the detection of transfusion transmissible infections including, HIV, Syphilis, Hepatitis B and C.

We are sincerely grateful to Susan Evans and the blood bank staff, Wellington Hospital, for the excellent tuition and practical training given to the students throughout the duration of this course. Students who attended the blood bank course included, Trusty Boisek from Palau, and Davidson Alarki and Donation Nomae both from the Solomon Islands.

It was the greatest pleasure to have Barbara Williams, Director of the Bilateral Pacific Group, Ministry of Foreign Affairs and Trade, present to the students their certificates at the final graduation. We would also like to thank the New Zealand Blood Service for allowing our students to tour the blood processing laboratories here in Wellington.

PPTC Staff, Students and Lecturers
BLOOD BANK 2011

Distance Learning Programme

Diploma in Medical Laboratory Technology
15 Haematology practical work books have now been received for assessment and the PPTC is delighted that students have worked so hard to successfully complete them within a reasonable timeframe. Congratulations to you all. Results and PPTC certificates will be awarded to successful students in the coming weeks.

Biochemistry, the third module of the Diploma, was delivered in December 2011 to 80 students who had registered, and it is great to say that the course continues to progress extremely well. Of the 80 students, 30 are currently involved in the Diploma programme and 50 are studying this module as a professional development measure.

In March of this year, the 2012 Microbiology module will be launched and following this in early June, the 2012 Transfusion Medicine module will be made available. It is a requirement of the PPTC that all students register for each individual module and therefore important to complete registration with both the PPTC and the WHO POLHN office in Suva well before the modules are to be released.

Laboratory diagnosis of STIs
The teaching of this course commenced in August with over 76 students registered. 47 Students have completed and passed the theoretical component of this course and PPTC certificates will be awarded in the coming weeks.

John's retirement from the PPTC

After completing 11+ years as Director of the PPTC, John has decided it is time to take life a little easier and so on the 3rd February he retired from his position. John has achieved a phenomenal amount in the Pacific over this time and we all will miss him terribly as I am sure you all will but at the same time we must respect his decision and grant him a well earned rest. John wishes to convey his best wishes and thanks to everyone and who better to do this but himself.

"Hi everyone
The time has come for me to hang up my microscope and head for the hills and the life of [partial] retirement! I just wish the Wellington weather was a bit better. As from Friday 3rd February I will be retiring from my position here at the PPTC and Phil Wakem will be taking over as Manager; I know you'll give Phil the same support that you have given me over the past 11 + years. Although I will be retiring as Director I will be continuing to work on a part-time basis and will be continuing to have responsibility for some of the programmes such as the TB EQA.

I have thoroughly enjoyed my time at the PPTC and meeting all of you in your own laboratories, at various WHO, PIHOA and SPC meetings as well as at courses here. I am privileged to have had this opportunity of working with you my friends and colleagues, to strengthen laboratory technology in this region and I wish you all the very best as you continue to do this work with the continuing support of the PPTC through Phil, Christine and other staff as they join the team. Best wishes & God Bless.
John"

New structure of the PPTC

The PPTC Board Directors have much pleasure in announcing the new staffing structure for the PPTC.

Phil Wakem, previously the Programme Co-ordinator for Education and Training has been appointed Manager of the PPTC. Christine Story, previously EQA Co-ordinator has been appointed Administrator of the PPTC. A new Programme Co-ordinator will be recruited within the next few weeks as will a Laboratory Quality Co-ordinator which is a new position within the organisation.

Phil Wakem, Manager

Christine Story, Administrator

The Board also is most pleased to announce that Ruth Reeve, medical laboratory scientist at Labcare Pathology, Hawera and Taranaki Base Hospitals, has been appointed as a PPTC Board member for 2012.

Country visits

Fiji

John travelled to Fiji to meet with representatives of the Fiji National University, School of Medicine, Nursing & Health Sciences, in order to discuss and finalise a memorandum of understanding between the School and the Pacific Paramedical Training Centre, the main focus of which is the co-operation of both institutions in terms of academic activities. This was very successful, for both the PPTC as a teaching and training institution as well as for the status its Diploma of Medical Laboratory Technology in the Pacific.

While in Fiji, John also met with staff of the WHO office to discuss collaboration between the two organisations on the implementation of Laboratory Quality Management Systems and the National Laboratory Policies.

A meeting was also held with the SPC Laboratory Specialists Sala Elbourne Duituturaga and Tebuka Toatu, also to discuss collaboration and closer working relationships between our organisations. Visits were made to the laboratories at CWM and Suva Private Hospitals and the Austech Laboratory.

PPTC courses for 2012

Haematology and blood cell morphology
12 March – 6 April 2012

This course will provide trainees with guidelines for the objective microscopic evaluation of white cells, red cells and platelets in both health and disease. Trainees will learn to correlate the blood film findings with results obtained from manual and / or automated methods for red cell, white cell and platelet parameters. The origin of all blood cells will be discussed from the common stem cell through all stages of development. The course is designed to give trainees confidence in the preparation, staining and examination of blood films, be able to differentiate the white cell count into both normal and abnormal populations and finally recognise and comment on with confidence abnormal film findings in an extensive range of common blood cell disorders.

Microbiology
July - August 2012

This course will provide trainees with an update on developments in microbiological procedures. The theoretical and practical aspects of current methods used in the isolation, identification and antimicrobial susceptibility testing of microorganisms will be covered along with discussions on emerging and re-emerging bacterial organisms likely to cause infectious diseases. Serological and other rapid methods for the identification of bacterial and viral diseases including Hepatitis A, B, and C, HIV and other STIs, will be discussed as will the role of the microbiology laboratory in the surveillance of nosocomial infections and identification of infections of public health importance.

Blood bank technology
November 2012

This course will include units of study covering the theoretical and practical aspects of the following topics: routine blood grouping; blood group antigens; crossmatch techniques; antibody detection; transfusion reactions; haemolytic disease of the newborn; screening blood for infectious agents; blood donor selection; organisation of a blood bank; and the appropriate use of blood components in transfusion medicine.

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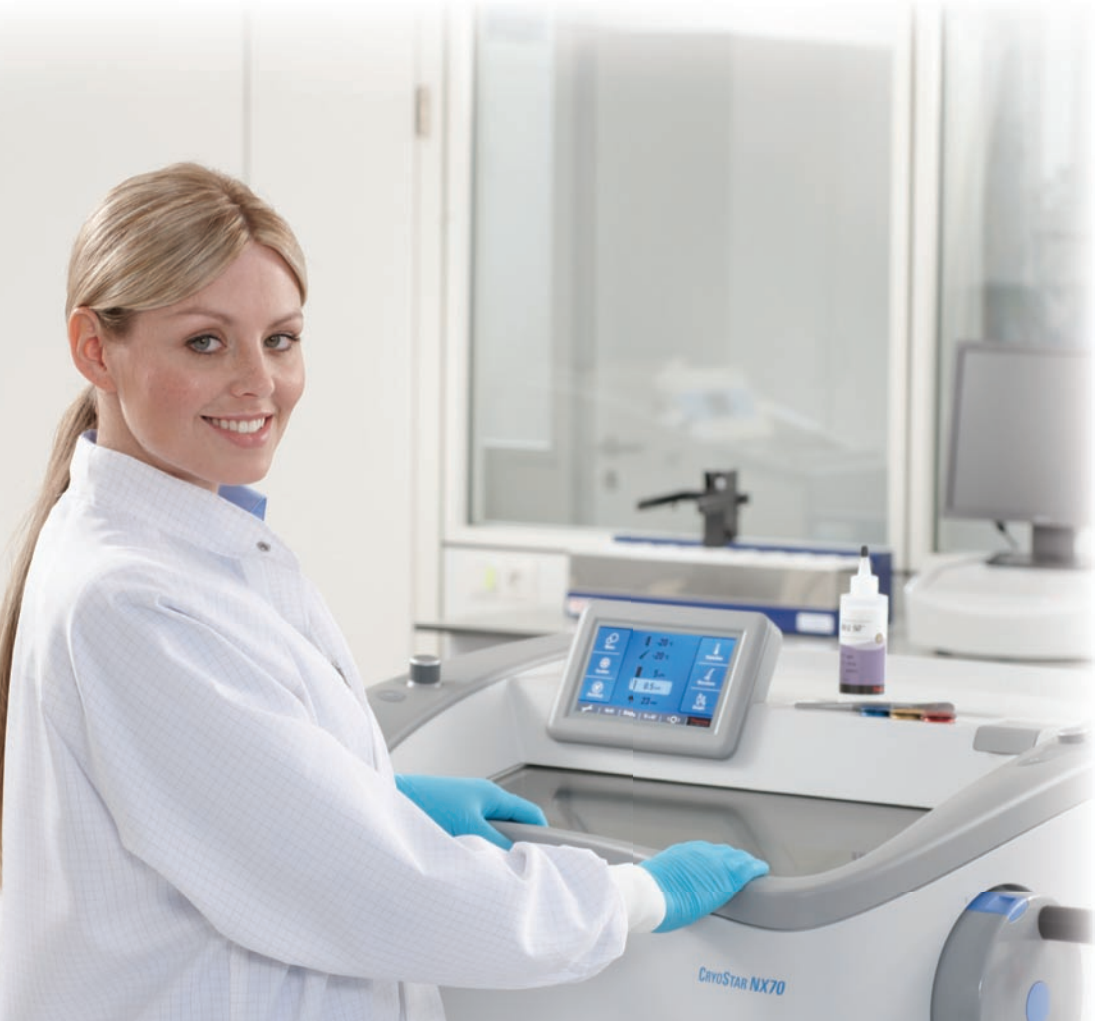

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