NZIMLS

THE NEW ZEALAND INSTITUTE OF MEDICAL LABORATORY SCIENCE (INC)

ISSN 1171-0195 Volume 69 Number 2 August 2015

New Zealand Journal of Medical Laboratory Science

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

2

THE VALUE OF MEDICAL LABORATORY SCIENCE
THE SOUTH PACIFIC CONGRESS
Monday 17 August - Friday 21 August 2015
The Langham, Auckland, New Zealand
www.nzimls.org.nz

STA R Max

Max
Productivity

Max
Reliability

Max
Innovation

Max
Versatility

HAVAS LIFE PARIS - ©2014 Diagnostica Stago - All rights reserved - Non-contractual photos - 01/2015

Excellence born from Expertise

Maximize your potential with **STA R Max®,**
the new instrument designed for high-volume labs
by the Coagulation company.

Embrace the **Max Generation!**

AUSTRALIA - NEW ZEALAND
At the Heart of Haemostasis

Diagnostica Stago Pty. Ltd.
651 Doncaster Road
Doncaster, Victoria, 3108
Australia
Phone (AUS): 1800 4 STAGO
Phone (NZ): 0508 4 STAGO
Fax: +61 3 9855 8999
info@stago.com
www.stago.com.au

Editor
Rob Siebers, PGCertPH FNZIC FNZIMLS FRSB, University of Otago, Wellington

Deputy Editor
Collette Bromhead, PhD MNZIMLS, Massey University, Wellington

Editorial Board
Julie Creighton, DipMLS, Canterbury Health Laboratories, Christchurch
Chris Kendrick, GradDipSci MSc MNZIMLS, Massey University, Palmerston North
Mike Legge, PhD MRSB FIBMS FNZIMLS FFSc(RCPA), University of Otago, Dunedin
Holly Perry, MAppSc(Hons) DipMLT MNZIMLS, Auckland University of Technology
Cat Ronayne, BMLSc DipGrad MNZIMLS, University of Otago, Dunedin
Mohd. Shahid, MBBS MD PhD FNZIMLS, Arabian Gulf University, Bahrain
John Sterling, BSc(Hons) MLett AFRCPA MAIMS FRS-SA, Flinders University, Australia
Terry Taylor, BSc DipMLS MNZIMLS, Southern Community Laboratories, Dunedin
Ann Thornton, CertMS GradDipOSH FNZIMLS, University of Otago, Wellington

Statistical Editor
Nevil Pierse, PhD, University of Otago, Wellington

Formatting
Sharon Tozer, AT DipBusStud, Executive Office NZIMLS, Rangiora

About the Journal
The *New Zealand Journal of Medical Laboratory Science* (the Journal) is the official publication of the New Zealand Institute of Medical Laboratory Science (NZIMLS). The Journal is peer reviewed and publishes original and review articles, case studies, technical communications, and letters to the Editor on all subjects pertaining to the practice of medical laboratory science. The Journal is open access (www.nzimls.org.nz/nzimls-journal.html) and is published three times per year in April, August, and November. Hard copies are circulated to all NZIMLS members and universities and research units in New Zealand and overseas. Current circulation is about 2,200 copies per issue. Printing is by Wickliffe (NZ) Ltd., Christchurch on environmentally responsible paper using elemental chlorine free third party certified pulp sourced from well managed and legally harvested forests and manufactured under the strict ISO14001 Environmental Management System. The Journal is indexed by CINAHL, EMBASE, SCOPUS, Informit, Thomson Gale, EBSCO and Biosis Citation Index, and the Journal Editors are members of the World Association of Medical Editors (www.wame.org).

Brief instructions to authors
The Journal accepts original submissions from anyone and anywhere. Comprehensive instructions can be found on the NZIMLS website (www.nzimls.org.nz/instructions-to-authors.html). All submissions will undergo single-blind peer review and possibly plagiarism checking with iThenticate™ software. If accepted for publication, copyright is vested in the author(s) under terms of the Creative Commons Attribution License (www.creativecommons.org/licenses/by/2.5/legalcode). The authors are responsible for the scientific content and views. Opinions expressed in the Journal are not necessarily those of the Editors, Editorial Board, or Council of the NZIMLS.

Advertising and subscription
Advertisement bookings and enquiries should be addressed to the NZIMLS Executive Officer at fran@nzimls.org.nz. Enquiries regarding subscription and address changes should be addressed to sharon@nzimls.org.nz. Address for the NZIMLS is PO Box 505, Rangiora 7440, New Zealand. Phone +64 3 313 4761.

New Zealand Journal of

Medical Laboratory Science

Volume 69 Number 2
August 2015
ISSN 1171-0195

Editorials
The Journal of the New Zealand Institute of Medical Laboratory Science: "Is it tangible evidence of our profession and its valued contribution to our New Zealand community and healthcare?" A personal view
Ross Hewett 44

The complete journal index (1946 – 2014)
Rob Siebers 45-46

Promoting global health: World Association of Medical Editors position on editors' responsibility
MA Winker and LE Ferris 48

Original articles
Rapid urea broth as an intermediate step in the identification of possible *Yersinia* spp. isolated from faecal specimens submitted for bacterial culture
Amanda Gourley and Mackenzie Nicol 50-52

Lower respiratory tract infections among children attending a tertiary hospital in Benin City, Nigeria
Philomena I Ogbogu, Rosemary E Omijie and Michael I Ogbogu 53-57

Letter to the Editor
Correction to the antibiotic-resistant Escherichia coli in a major New Zealand river article
Mona Schousboe and John Aitken 60

Notice
Health Practitioners Disciplinary Committee decisions........ 59-60

Regular features
Advertisers in this issue........ 43
Editorial Board changes 43
In this issue 43
Fellowship of NZIMLS 60
News from the Universities........ 61
North Island Seminar report 63
NICE Weekend meeting report........ 64
Biochemistry SIG Meeting report........ 65
Microbiology SIG Meeting report 66
Pacific Way column 67-68
Journal questionnaire 73
NZIMLS Calendar........ Inside back cover

In this issue

Rob Siebers, Editor

Yersinia isolation agar is used selectively to isolate *Yersinia* spp., however, many non-*Yersinia* enteric organisms are able to grow and form colonies which are difficult to differentiate from *Yersinia* spp. Detection of the urease enzyme is a possible step to separate *Yersinia* spp. from other *Enterobacteriaceae* that also appear as dark red colonies with a transparent border on Yersinia isolation agar. In this issue Amanda Gourley and Mackenzie Nicol from Aotea Pathology, Wellington show that the use of a Rapid Urea Broth for detection of urease activity is a time and cost saving intermediate step in the identification of possible *Yersinia* spp. isolates from faecal specimens.

Lower respiratory tract infection (LRTI) is a major cause of paediatric morbidity and mortality, especially among non-affluent communities. In this issue Philomena Ogbogu and colleagues show that *Klebsiella pneumoniae* was the most prevalent organism causing LRTI in children in Nigeria. Ofloxacin was the most active antibacterial agent against bacterial isolates from in-patients and out-patients there.

There are three Editorials in this issue. In the first Ross Hewett, President of the NZIMLS presents his personal views and asks the question of whether the Journal is tangible evidence of our profession and its valued contribution to our New Zealand community and healthcare? He concludes that it is still a tangible reminder of what we do, who we are professionally and testament to our predecessors who believed and did something about it.

The second Editorial is by Rob Siebers, the Journal's Editor who has compiled a complete index of every article published in the Journal since the 1st issue in 1946 together with a number of interesting facts. It is hoped the complete Journal index plus free access to every issue since 1946 will be of benefit and use by members and the wider scientific community.

The final Editorial is by is by Margaret Winker and Lorraine Ferris who are members of the Ethics and Policy Committee of the World Association of Medical Editors (WAME). This Editorial presents WAME's position on editors responsibility on promoting global health and is simultaneously being published in many biomedical journals around the world whose Editors are members of WAME. Our Journal's Editors are also members of WAME with Rob Siebers having previously served as Board Director for four years and is currently Chair of its Small Journal Taskforce. As Editors we support WAME's position on editors' responsibility to promote global health.

Editorial Board changes

Collette Bromhead, formally from Aotea Pathology Wellington and currently at Massey University Wellington, has joined the Editorial Board as Deputy Editor. Collette has published a number of articles in biomedical journals and in the next few years will learn all the ropes of editing a journal from the current Editor, Rob Siebers, until she will ultimately replace him as Editor in the future. Terry Taylor from Dunedin, previous Deputy Editor, will remain as an Editorial Board member.

Advertisers in this issue

Bio-Strategy 62

Diagnostica Stago Pty Ltd..........................Inside Front Cover

MediRay..47

Roche Diagnostics 49

Sysmex ....Back Cover

Thermo Fisher Scientific 58

Advertise with the NZ Journal of Medical Laboratory Science

Contract and Casual rates available from $275.00 per issue (plus GST)

Contact:

Executive Office
NZIMLS

PO Box 505, Rangiora 7440

email: fran@nzimls.org.nz

EDITORIAL

The Journal of the New Zealand Institute of Medical Laboratory Science: "Is it tangible evidence of our profession and its valued contribution to our New Zealand community and healthcare?" A personal view

Ross Hewett
Auckland City Hospital

In April, 1946 the predecessors of the NZIMLS, then called the New Zealand Association of Bacteriologists published Journal Number 1 of Volume 1. The Editor at the time was Mr D Whillians c/- of the Pathology Department, Auckland Hospital. Doug Whillians went on to become President of the New Zealand Association of Bacteriologists as well as Principal Technologist of the Pathology Department at Auckland Hospital, an irony not lost. Although an attempt was made to create a constitution and rules in 1925 for the Bacteriological and Pathological Association of New Zealand, it wasn't until April 1946, when the Certificate of Incorporation was issued to The New Zealand Association of Bacteriologists Incorporated, did the profession become legally recognised.

In the first journal editorial written by Mr Whillians, the first two paragraphs are as follows:
"The commencement of a Journal is never a step to be undertaken lightly, especially when subjects of a scientific nature are to be dealt with. However, it was the unanimous opinion of those present at the first Annual General Meeting of the Association, held in Wellington, that a Journal was a necessity as a means of keeping all the members of the Association acquainted with the progress of their fellow members and the dissemination of all knowledge thought to be of interest and use. The progress of the Journal and its value will, however, depend on the active support of all members, senior and junior, for material to publish, for constructive criticisms and suggestions, and in the initial stages for a generous allowance for difficulties in publication."

In the final sentence, the following plea was made:
"In the mean-time the Editor would be grateful for suggestions, notes, articles and references for the next issue, these to be to hand by June 1st for the July issue."
This editorial will be for the August 2015 Journal, to be published 69 years and 5 months after the first and the sentiments expressed by the editor in 1946 haven't changed at all from those of our current Editor Rob Siebers or the view of the NZIMLS Council of the value of the current Journal.

As a profession, we continual seek public and professional recognition in a healthcare environment dominated by the medical and nursing profession. There is very little tangible evidence to the public at large about what we do apart from the patients "lab results" we provide to doctors and nurses for dissemination. The face of our profession is more often a phlebotomist and it will involve pain.

We live in the shadows of our laboratories, managing extremely sophisticated scientific instrumentation, performing complex analytical procedures time and time again with very little error and all this is just another day in the lab and just taken for granted.

In the modern world, 69 years on from our first Journal much has changed. Everything we do can be accessed in seconds via the internet including our entire collection of previously published journals. Our journal is open access, anyone in the world can read it. It has been recognised by one university in Australia as one of the top ranked online journals in medical laboratory science in the world.

Recognition of our science and our profession is our responsibility, no one else will do it for us because they don't know what we do. Only we know and the NZIMLS journal is a tangible way for us to write about it, to demonstrate the value we contribute to healthcare and to our community. And because it is open access, the articles written and published in it will get cited by other authors in the global science and healthcare community.

We will continue to print hard copies of the Journal and send to every member and although some will end up in the bin, and unopened, it is still a tangible reminder of what we do, who we are professionally and testament to our predecessors who believed and did something about it.

AUTHOR INFORMATION

Ross Hewett, MNZIMLS, President of the NZIMLS and Laboratory Manager*

*Department of Pathology and Laboratory Medicine, Auckland City Hospital.
Email: RossH@adhb.govt.nz

Editor's note

Ross has unknowingly beaten a 43 year-old Journal record for the longest title, 32 vs 31 words long.

Copyright: © 2015 The author. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

EDITORIAL

The complete journal index (1946 – 2014)

Rob Siebers
University of Otago, Wellington

The Institute's journal has been published continuously since 1946. All issues of the journal have been freely accessible on the NZIMLS website (http://www.nzimls.org.nz/journal-archive.html). As of now, a complete index of every article ever published is available on the website. Included are obituaries, editorials, and the TH Pullar Memorial Addresses, while letters and reports are excluded.

The Journal has gone through four name changes over the years. It was originally named the *Journal of the New Zealand Association of Bacteriologists* (Volume 1, Issue 1, 1946 to Volume 15, Issue 3, 1961). Subsequently it was briefly named the *Journal of the New Zealand Institute of Medical Laboratory Technology* (Volume 15, Issue 4, 1961 to Volume 16, Issue 3, 1962), followed by the *New Zealand Journal of Medical Laboratory Technology* (Volume 17, Issue 1, 1963 to Volume 44, Issue 4, 1990) and currently the *New Zealand Journal of Medical Laboratory Science* (since Volume 45, Issue 1, 1991).

The index lists all the published articles in the style of references for journal articles; namely author names, followed by article title, journal abbreviation, year of publication, volume and issue number and first and last page number. All the articles have been categorised for the different medical laboratory science disciplines, as well as a few other categories such as historical and education among others.

While compiling the index a number of interesting facts emerged. First of all a total of 1,129 articles were published over the 68 year period, giving an average of 16.6 articles per year (in 2014: 15 articles). These 1,129 articles were from 876 authors and co-authors giving an average number of 1.3 authors per article. Of the 876 authors in total, 623 (71.1%) only published one article, 239 (27.3%) authors published between two to nine articles each, while 14 published 10 or more articles (Table 1).

Articles were initially authored by a single person until 1953 when the 1st multi author (two) paper appeared (1). The most number of authors on an article has been nine, this happening in 2006 and 2014 (2). However, the 1996 paper was subsequently retracted when it was found to have been involved in plagiarism. There was a previous incident of unintentional plagiarism in the journal in 1954 (3) when it was noted that *"We reprint here, for the benefit of those interested in bacteriological nomenclature, part of an article which appeared in a recent edition of the Lancet (Oct. 17, 1953)."* Reprinting of published articles is only permitted with the copyright holder's permission together with a statement to this effect.

In the 1st 10 years, medical laboratory science disciplines covered in articles were predominantly microbiology (n=45, 48%), followed by clinical biochemistry (n=22, 24%), with only a few in haematology (n=7, 7.5%). Subsequently, the other disciplines were covered more frequently in the subsequent years. Table 2 shows the number of articles published in the main disciplines over the 68 year period. Interestingly, in the last two years most articles in the journal have been microbiology oriented with no clinical biochemistry or transfusion articles published since 2013 or immunology articles since 2012.

Table 1. Authors with 10 or more articles in the Journal (1946-2014).

Author	Number of articles	Time period
Rob Siebers	40	1972-2012
Anne Paterson	21	1981; 1996*
Mike Legge	17	1974-2011
Les Milligan	17	1979-1993
CS Shepherd	15	1956-1978
AE Knight	14	1975-1993
Roger Austin	13	1975-1987
Chris Kendrick	13	1994-2013
Colvin Campbell	13	1996*
Steve Henry	12	1981-1998
Rod Kennedy	12	1957-1978
Shirley Gainsford	11	1969-2002
Mike Gratten	10	1970-1976
Jan Parker	10	1980-1990

Excluded are Editorials, letters to the editor, or reports.
*50th Anniversary issue focusing on the Institute's history.

Table 2. Number of articles published in the main medical laboratory science disciplines.

Discipline	Articles (n)
Microbiology	255
Clinical biochemistry	248
Haematology (including coagulation)	138
Transfusion medicine	105
History of the profession	53
Immunology/serology	45
TH Pullar Memorial Address	39
Miscellaneous	31
Education	29
Instrumentation	29
Parasitology/fungi	26
Multidisciplinary	21
Histology	20
Management	19
Health & safety	16
Professional affairs	14
Virology	13
Cytology	13
Cytogenetics	11
Molecular pathology	4

In 1958 M. Jenner from the Hawera Hospital Laboratory surveyed smaller hospital laboratories in regard to donor services. Eleven out of the 12 hospital laboratories surveyed offered tea with brandy, whiskey, beer, or stout to their donors post-bleeding, with 50% of donors requesting an alcoholic stimulant when given the choice (4).

Antibiotic resistance already remarked upon in 1956 (5) and the 1st paper on methicillin-resistant *Staphylococcus aureus* (MRSA) appeared in 1976 (6). Subsequently eight more articles on MRSA have appeared in the journal.

Some other interesting facts have emerged:

- The longest article title consisted of 31 words comprising 879 characters (7), while the shortest title consisted of one word comprising four characters (8).
- Editorials were regularly written as from the 1st issue of the journal in 1948 but, until the 1st issue in 1963, were unsigned and generally untitled, although given the nature of these editorials they were assumed to have been written by the President or the Editor at that time.
- In his 1985 TH Pullar Memorial Address, Brian Main called for the abolishment of laboratory assistants (9).
- The August 1991 issue did not contain any articles, only the program of the upcoming South Pacific Congress in Auckland, the Pacific Way column and an obituary.
- In its 60th year of publication in 2006, the journal reprinted a number of historical articles from the early years of the Journal.
- The Journal questionnaire was started in 2006 as another aid to obtain CPD points. Questions were derived from articles printed in each issue. Initially the questions were in a true/false format, which changed to a multiple answer-based format in 2007. At least seven out of ten correct answers were initially required to obtain 5 CPD points. This was increased to eight out of ten in 2007.

It is believed that the journal archive will be a rich resource. For instance, one can determine whether a similar case study to one potential authors' are considering submitting has previously been published and can therefore be compared. Also, one can see how, for instance, education of medical laboratory staff has evolved over time. It is hoped that the journal index will be widely used and will be of value.

REFERENCES

1. Bergersen FJ, Watt MN. Use of the phase contrast microscope. *J N Z Assoc Bacteriol* 1953; 8(3): 59-60.
2. Shahid M, Khan HM, Sobia F, Singh A, Khan F, Shah MS, Shukla I, Malik A, Khan IM. Molecular epidemiology of various antibiotics resistance genes, including *bla*$_{NDM1}$, in Indian environmental and clinical bacterial isolates: a comparative study. *N Z J Med Lab Sci* 2014; 68(1): 9-14.
3. Anon. The banished bacterium. *J N Z Assoc Bacteriol* 1954; 9(2): 36-37.
4. Jenner M. Transfusion services in smaller hospitals. *J N Z Assoc Bacteriol* 1958; 13(2): 45-48.
5. Adamson DH. The uncontrolled use of the antibiotics. *J N Z Assoc Bacteriol* 1956; 11(1): 8-12.
6. Garner J. Two isolations of methicillin resistant *Staphylococcus aureus*. *NZ J Med Lab Technol* 1976; 30 (2): 48-49.
7. Menzies R. Characterisation of seven type cultures of anaerobic bacteria by gas liquid chromatography using methods and keys from the Center for Disease Control (Atlanta) Georgia and the Virginia Poytechnic Institute. A comparison. *N Z J Med Lab Technol* 1981; 35(3): 78-80.
8. Reid C. Pica. *N Z J Med Lab Technol* 1979; 33(1): 1-3.
9. Main B. T.H. Pullar Memorial Address. *N Z J Med Lab Technol* 1985; 39(4): 148-149.

AUTHOR INFORMATION

Rob Siebers, PGCertPH FNZIMLS FNZIC FSB, Editor[1] and Associate Professor[2]

[1]NZIMLS, Rangiora and [2]School of Medicine & Health Sciences, University of Otago, Wellington
Email: rob.siebers@otago.ac.nz

N Z J Med Lab Sci 2015; 69: 45-46

Copyright: © 2015 The author. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.

From the Medical Laboratory Science course at Charles Darwin University, Australia:

Some of the top ranked journals in medical laboratory science which are available online include:

American Journal of Clinical Pathology

Biochemistry and Cell Biology

BMC Biochemistry

BMC Immunology

European Journal of Haematology

Immunology

Immunology and Cell Biology

Medical Laboratory Journal

New Zealand Journal of Medical Laboratory Science Pathology, Research and Practice

Pathology and Laboratory Medicine International

The New Zealand Institute of Medical Laboratory Science (Inc)

Invites Members to the

71st Annual General Meeting

To be held during the South Pacific Congress

On Thursday 20 April 2015

At The Langham Hotel
Crystal Room 1

This will be a breakfast meeting commencing at 7:00am

Please register to attend via the SPC Registration page at www.nzimls.org.nz

(For catering purposes it is important that you register for this meeting)

FilmArray™

The fastest way to better results.

DON'T GUESS.

KNOW.

SYNDROMIC INFECTIOUS DISEASE TESTING IN ABOUT AN HOUR.

Come see us at Booth # 16 and 17 at the upcoming NZIMLS and South Pacific Congress.

0800 medi'Ray
info@mediRay.co.nz
www.mediRay.co.nz

Medi'Ray
NEW ZEALAND

EDITORIAL

Promoting global health: World Association of Medical Editors position on editors' responsibility

MA Winker and L E Ferris

World Association of Medical Editors (WAME), Ethics and Policy Committee, WAME Board

The published medical research literature is a global public good. Medical journal editors have a social responsibility to promote global health by publishing, whenever possible, research that furthers health worldwide. For purposes of this statement global health is defined as follows:

"Global health is an area for study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide. Global health emphasizes transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences and promotes interdisciplinary collaboration; and is a synthesis of population-based prevention with individual-level clinical care" (1).

More specifically, all medical journal editors, regardless of their location, should strive to:

(a) Publish research addressing the greatest global health concerns;

(b) Specifically encourage the publication of innovative and solution-focused research in all fields of medicine, public health, and health promotion; in particular, research applicable to low- and middle-income countries;

(c) Encourage the publication of research from authors in low- and middle-income countries;

(d) Provide free Web-based access to research articles to readers in countries that cannot afford to pay for them;

(e) Provide publication fee waivers for research conducted and authored primarily by researchers from low- and middle-income countries;

And, for editors in high-income countries:

(f) Invite researchers from low- and middle-income countries to participate on editorial boards of their journals;

(g) Invite researchers from low- and middle-income countries to participate as peer reviewers for articles submitted to their journals;

(h) Invite researchers from low-and middle-income countries to write editorials and commentaries on the local or regional impact of and, if relevant, responses to global health issues to help educate readers in high-income countries about the human costs and consequences of these issues.

REFERENCE

Koplan JP, Bond T, Merson M, Reddy K, Rodriguez M, Sewankambo N. Towards a common definition of global health. *Lancet* 2009; 373(9679): 1993-5. DOI: 10.1016/ S0140-6736 (09)60332-9.

Also available at:
https://www.globalbrigades.org/media/Global_Health_Towards_a_Common_Definitition.pdf.

This statement has been approved by the WAME Ethics and Policy Committee and endorsed by the WAME Board. May 31, 2015.

The Editors of this journal are member of the World Association of Medical Editors and believes it is important that the statement on promoting global health and this accompanying Editorial is brought to the attention of readers. This Editorial may appear in other medical and biomedical journals whose editors are members of WAME. The World Association of Medical Editors (WAME) retains copyright [http://www.wame.org/].

N Z J Med Lab Sci 2015; 69:48

Understanding pregnancy care

Complete solution from early gestation until delivery

Down syndrome screening
- First trimester screening: Elecsys free βhCG; Elecsys PAPP-A
- Second trimester screening: Elecsys hCG+β; Elecsys AFP

Preeclampsia
- Elecsys sFlt-1; Elecsys PlGF (sFlt-1/PlGF ratio)
- Aid in diagnosis of preeclampsia (week 20 until delivery)
- Aid in short term prediction of preeclampsia in pregnant women with signs and symptoms
  - Rule-out PE within 1 week[1]
  - Rule-in PE within 4 weeks[1,2]

Other tests for pregnant women
- Anemia, Syphilis, HIV, Viral Hepatitis, Vitamin D and more

Thyroid hormones
- At diagnosis of pregnancy
- First line testing: Elecsys TSH, Elecsys FT4, Elecsys FT3
- Second line testing: Elecsys Anti-TPO, Elecsys Anti-TSHR

TORCH group infections

Toxoplasmosis, Rubella, Cytomegalovirus, Herpes Simplex viruses 1 and 2
- First trimester and subsequent pregnancy weeks
- Serology for screening:
  - TORCH screening with IgG/IgM
  - Serological confirmation with Avidity test
- PCR testing for confirmation

©2014 Roche

Roche Diagnostics NZ Ltd
15 Rakino Way, Mt Wellington 1060
P O Box 62-089, Sylvia Park 1644
Auckland, New Zealand
TAPS Approval No: NA 7867

COBAS, LIFE NEEDS ANSWERS and ELECSYS are trademarks of Roche.

1. Lapaire, O., et al. (2010). Eur J Obstet Gynecol Reprod Biol 51, 122-129;
2. Ohkuchi, A., et al. (2013). Hypertens Res 36, 1073-1080

ORIGINAL ARTICLE

Rapid urea broth as an intermediate step in the identification of possible *Yersinia* spp. isolated from faecal specimens submitted for bacterial culture

Amanda Gourley and Mackenzie Nicol
Aotea Pathology Ltd, Wellington, New Zealand

ABSTRACT

Objectives: To investigate the use of a Rapid Urease broth as an intermediate step between isolation and identification of possible *Yersinia* spp. organisms from faecal bacterial cultures on Yersinia Isolation Agar (YIA).
Methods: Colonies on YIA which were dark red coloured with a transparent border ('bulls-eye') were inoculated into a Rapid Urea Broth and incubated at 35 ± 2°C for 4-24 hours. Organisms which were urease positive following 4 hours of incubation were identified by Biomeriuex Analytical Profile Index (API) testing, organisms which were urease negative following 4 hours of incubation were re-incubated overnight. Organisms which were urease positive following overnight incubation were identified using a RapID ONE.
Results: 105 possible *Yersinia* spp. isolates from patient specimens were tested, 93 were urea negative (identified as 1 *Acinetobacter* spp. , 78 *Citrobacter* spp., three *Enterobacter* spp., five *Escherichia* spp., four *Pantoea* spp., and two *Serratia* spp.), nine were urea positive following four hours incubation (identified as five *Providencia* spp., three *Yersinia enterocolitica* and one *Yersinia pseudotuberculosis*) and a further three were urease positive following overnight incubation (identified as two *Klebsiella* spp. and one *Serratia* spp.).
Conclusions: This study shows that the use of a Rapid Urea Broth for detection of urease activity is a time and cost saving intermediate step in the identification of possible *Yersinia* spp. isolates from faecal specimens. The urease result is available within four hours enabling identification testing to be performed on the same day; therefore turn-around-times are not affected by introducing this extra step. The projected savings in reagents and staff time led to the implementation of this method at Aotea Pathology Limited, Wellington, in September 2014.

Key words: *Yersinia*, faeces, rapid urease broth

N Z J Med Lab Sci 2015; 69: 50-52

INTRODUCTION

Yersinia enterocolitica (YE), and to a lesser extent *Y. pseudotuberculosis*, are the most common causative agents of Yersiniosis, a self-limiting gastrointestinal disease which is transmitted via the faecal oral-route (1–3). Investigation for Yersinia is part of routine investigation for faecal bacterial pathogens at Aotea Pathology Limited, Wellington, New Zealand. *Yersinia* spp. bacteria are gram-negative, non-spore forming bacilli, smaller than most others in the *Enterobacteriaceae* family and relatively slower growing (4).

To investigate patient faecal specimens for *Yersinia* spp. Aotea Pathology utilises Fort Richard Laboratories (NZ) Yersinia isolation agar which is based on the cefsulodin-irgasan-novobiocin (CIN) agar, developed by Schiemann in 1979 (5). This agar is selective for the isolation of *Yersinia* sp, producing a characteristic dark-red colony with a transparent border giving a 'Bulls-eye' appearance (4,6). This agar has well-documented limitations, specifically that many non-*Yersinia* enteric organisms are able to grow and form colonies which are difficult to differentiate from *Yersinia* spp., specifically *Enterobacter* spp., *Serratia* spp. *and Citrobacter* spp. (BD™ Yersinia Selective Agar (CIN Agar) Instructions for use – Ready-to-use Plated Media, PA-254056.06, 2013). This lack of specificity leads to follow up of many non significant organisms resulting in increased cost for bacterial diarrhoea investigation. Chromogenic agars for isolation of *Yersinia* spp. have previously been investigated in an in-house validation study; however, no benefit was demonstrated therefore a change in media was not implemented (data not shown).

Retrospective data analysis of faecal bacterial culture results reported by Aotea Pathology in a three month period (1/12/13- 28/2/14) showed that only 3.5% of all possible *Yersinia* spp. isolates followed up, from Yersinia isolation agar plates and further identified by Biomeriuex Analytical Profile Index (API) testing, were subsequently confirmed to be *Yersinia* spp. The majority of the remaining isolates (71.7%) were confirmed to be *Citrobacter* spp. This finding prompted investigation into options to improve specificity and reduce resource costs.

Biochemical reactions that could be used to separate *Yersinia* spp. from *Enterobacter* spp., *Serratia* spp. and *Citrobacter* spp. were considered, with an aim to prevent unnecessary full biochemical API testing of non-*Yersinia* spp. organisms. Detection of the urease enzyme was identified as a possible step to separate *Yersinia* spp. from the other *Enterobacteriaceae* that also appear as dark red colonies with a transparent border on Yersinia isolation agar . Urease enzyme is produced by some organisms (including *Yersinia* spp.) and breaks down urea into ammonium and bicarbonate ions. The test for urease detects pH changes as a result of the presence of ammonium, changing the phenol red indicator to a pink-red colour. Using a rapid urease broth test enables detection of an organisms' ability to hydrolyse urea within four hours (7). The majority of *Enterobacter* spp., *Serratia* spp. and *Citrobacter* spp. organisms do not produce the urease enzyme (8), therefore a study analysing the utility of this test as a step in the identification of *Yersinia* spp. was carried out.

In order to confirm that *Yersinia* spp. isolates reported from the Wellington region community population are urease positive, the urea results for all API panels used to confirm the identification of previous *Yersina* spp. isolates from the period 01/01/2001 to 31/07/2014 were analysed. This analysis showed that all 978 *Yersina* spp. isolates reported during this period were urease positive (including 966 isolates reported as *Y. enterocolitica,* three reported as *Y. pseudotuberculosis* and nine reported as *Yersinia* spp. This confirmed urease as a biochemical target that could be investigated as an intermediate step in *Yersinia* spp. identification.

A method investigation and a validation study were performed, which included 105 isolates followed up as possible *Yersinia* spp. from patient specimens, and 12 *Yersinia* spp. isolates obtained from the culture collection of the Institute of Environmental Science and Research Limited (ESR).

MATERIALS AND METHODS

Data from *Yersinia* spp. isolates reported between 01/01/2001 and 31/07/2014 were able to be analysed as the biochemical test results for all tests in the API panel were recorded electronically, and these results are searchable using a statistics programme linked to the Laboratory Information Management System (LIMS) used at Aotea Pathology.

At Aotea Pathology, all faecal specimens submitted for investigation of bacterial diarrhoea are cultured for *Yersinia* spp. using Yersinia isolation agar (Fort Richard Laboratories, Auckland, NZ). Colonies fulfilling the morphological criteria for *Yersinia* spp. (dark red coloured with a transparent border, 'Bulls-eye') are then further identified using the biochemical identification systems API 10S and/or API 20E standardised identification system (Biomérieux). This testing is performed as per the manufacturer's protocol, and a tryptic soy with sheep blood/MacConkey agar split plate (Fort Richard Laboratories, Auckland, NZ) is inoculated from the same saline broth for confirmation of purity. All API test strips and purity plates are incubated at 28°C in aerobic conditions overnight. Identification is first performed using an API 10 S, if an unacceptable result is obtained further testing using an API 20 E is performed.

Rapid urea broth (Fort Richard Laboratories, NZ) is designed to provide a urease result within four hours of inoculation, when incubated at 35 ± 2°C. A positive urease result is indicated in a colour change to pink/red from yellow/orange. For the purposes of reducing turn-around-time, any colour change from yellow/ orange was considered positive following four hours incubation, including rose-pink to magenta pink/red.

Isolates from patient specimens

Patient specimens were cultured directly on to Yersinia isolation agar and streaked for single colonies. Plates were incubated at 28°C in aerobic conditions for 48 hours before cultures were examined. Isolates which were selected for identification by API 10 S as possible *Yersinia* spp. from YIA were included in this validation study.

A rapid urea broth was inoculated with a single well isolated colony from the Yersinia isolation agar plate, the colony selected was morphologically identical to the colonies selected for inoculating the API 10 S for routine identification. The rapid urea broths were incubated at 35 ± 2°C, and read following four hours incubation. All negative urea broths were re-incubated overnight, and read again following 18-24 hours incubation. API results were also recorded.

Yersinia spp. isolates from the ESR culture collection The following known organisms were selected for inclusion in an analytical specificity panel, including six *Y. enterocolitica*, four *Y. pseudotuberculosis*, one *Y. kristensii* and one *Y. intermedia*. These organisms are isolates from the ESR culture collection which have been isolated from human specimens, and/or are type strains for each organism (Table 1).

Table 1. Organisms included from the ESR culture collection.

Organism	Source/strain
Yersinia enterocolitica	ERL 95/1291
Yersinia enterocolitica	ERL 95/2135
Yersinia intermedia	ATCC 29909
Yersinia enterocolitica	ATCC 9610
Yersinia kristensenii	ATCC 33638
Yersinia enterocolitica	Sweden MYO
Yersinia enterocolitica	Sweden 79B
Yersinia pseudotuberculosis	ATCC 29833
Yersinia enterocolitica	NCTC 10460
Yersinia pseudotuberculosis	NCTC 8580
Yersinia pseudotuberculosis	NZ Rabbit
Yersinia pseudotuberculosis	NCTC 1102

Freeze-dried organisms were rehydrated according to instructions provided by ESR, and were grown on tryptic soy agar with sheep blood (Fort Richard Laboratories, Auckland, NZ) at 28°C in aerobic conditions for 24-48 hours. A single colony of the pure isolate was inoculated in to a rapid urea broth. The broths were incubated at 35 ± 2°C, and read following four hours incubation. Because all were urease positive within four hours incubation, none were re-incubated overnight.

RESULTS

Isolates from patient specimens

During the validation study, 105 isolates from patient specimens were tested in tandem with the current identification testing protocol (Table 2). 93 isolates were urea negative following both four hours and 18-24 hours incubation. These were identified by API 10 S and/or API 20 E as one *Acinetobacter* spp., 78 *Citrobacter* spp., three *Enterobacter* spp., five *Escherichia* spp., four *Pantoea* spp., and two *Serratia* spp.

Nine isolates were urease positive following four hours incubation and were identified by API 10 S and/or API 20E as five *Providencia* spp., three *Y. enterocolitica* and one *Y. pseudotuberculosis*. Three isolates were urease positive following 18-24 hours incubation and were identified by API 10 S and/or API 20 E as two *Klebsiella* spp. and one *Serratia* spp.

Yersinia spp. isolates from the ESR culture collection

All 12 organisms included in the analytical specificity panel were urease positive following four hours incubation so did not require for the broths to be re-incubated. Since implementation of this method in September 2014 up until October 31 2014, 191 isolates have been followed up as possible *Yersinia* spp. Of these, 156 were urea negative, 25 were urea positive following four hours incubation (eight *Y. enterocolitica*, nine *Y. pseudotuberculosis*, three *Providencia* spp., one each of *Morganella* spp., *Citrobacter* spp., *Serratia* spp., *Enterobacter* spp. and *Klebsiella* spp.). A further 10 were urea positive following 24 hours incubation (seven *Klebsiella* spp., and one each of *Serratia* spp., C*itrobacter* spp., and *Enterobacter* spp.). All isolates confirmed to be *Y. enterocolitica* or *Y. pseudotuberculosis* were urea positive following four hours incubation.

Table 2. API 10s results for all isolates from patient specimens included in the validation study.

Organism	n	Urease +	Urease –
Acinetobacter spp.	1	0	1
Citrobacter spp.	78	0	78
Enterobacter spp.	3	0	3
Escherichia spp.	5	0	5
Klebsiella spp.	2	2	0
Pantoea spp.	4	0	4
Providencia spp.	5	5	0
Serratia spp.	3	1	2
Y. enterocolitica	3	3	0
Y. pseudotuberculosis	1	1	0

DISCUSSION

The validation study performed provided evidence that rapid urea broth, detecting the presence of urease, as an intermediate identification step is appropriate in the identification of *Yersinia* spp. from faecal specimens in our testing population, and was introduced in September 2014. In order to reduce the effect on turn-around-time, the following testing algorithm was selected for implementation. All isolates which are urease positive following four hours incubation are to be identified using API 10 S, while all isolates which are urease negative at this time are to be re-incubated overnight (to 18-24 hours incubation). Isolates which are urease positive following this extended incubation (18-24 hours) are to be identified using a RapID ONE (Remel), a rapid biochemical identification system, giving a confirmed identification after four hours. Isolates which remain urease negative will be reported as negative for *Yersinia* spp. Further analysis will be performed following collection of further data to investigate the possibility of removing the need to reincubate urea rapid broths for 18-24 hours.

The turn-around-time for all 93 urea negative isolates, all four urea positive *Yersinia* spp. isolates and five urea positive *Yersinia* spp. negative isolates would have been the same as current testing protocols, with only three specimens being delayed by 24 hours. These three isolates were urea negative following four hours incubation, but urea positive following 18-24 hours incubation and therefore would require further testing by API to confirm identification.

Using the RapID ONE Identification system for identifying only isolates which are urease positive following 18-24 hours incubation will eliminate any delay in reporting of results, resulting in little effect on turn-around-time.
Since this method was implemented on 22 September 2014 for routine testing of possible *Yersinia* spp. isolates in our community population, a nationwide outbreak of *Y. pseudotuberculosis* (9) has provided further evidence to support use of this improved methodology. Up to 31 October 2014, all nine *Y. pseudotuberculosis* isolates reported tested positive for urea hydrolysis following four hours incubation, and all eight *Y. enterocolitica* isolates reported were also urea positive following four hours incubation. Eight non--*Yersinia* isolates which were urea positive following four hours incubation were identified as three *Providencia* spp., and one each of *Citrobacter* spp., *Klebsiella* spp., *Enterobacter* spp., *Serratia* spp. and *Morganella* spp. 10 non-*Yersinia* isolates which were urea positive following 24 hours incubation were identified as seven *Klebsiella* spp. and one each of *Serratia* spp., *Enterobacter* spp., and *Citrobacter* spp. There has been no effect on the turn-around-time, and savings in both reagent expenditure (a full cost/benefit analysis was performed) and staff time has been noted.

The limitations of this study include the subjective interpretation of cultures; colonial morphology must be determined to be the same for all organisms with a suspicious morphotype, which is dependent on the technical skill of the technician/scientist. In cases where more than one organism with a suspicious morphotype is present, the technician/scientist must recognise the requirement to select more than one organism for further testing. It is also possible that *Yersinia* spp. may be occasionally encountered that fail to produce a urease enzyme or that the urea broth result is misinterpreted, however analysis of results for a 13 ½ year period shows that this is unlikely in our community population.

CONCLUSION

Rapid urea broth can be used as an intermediate step to separate possible *Yersinia* spp. from the majority of non-*Yersinia* spp. organisms which also display dark red colonies with a transparent border ('Bulls-eye') on YIA or CIN agar. Only urease positive isolates require full identification as possible *Yersinia* spp. The introduction of this method decreased reagents used and staff time when testing for *Yersinia* spp. in a population with low prevalence of pathogenic *Yersinia* spp. without any significant increase to turn-around-time.

AUTHOR INFORMATION

Amanda Gourley, BBMedSci GradDipSci, Medical Laboratory Scientist and Team Leader Microbiology
Mackenzie Nicol, MSc, Medical Laboratory Scientist and Head of Microbiology

Aotea Pathology Ltd, Wellington, New Zealand

REFERENCES

1. Galindo CL, Rosenzweig JA, Kirtley ML, Chopra AK. Pathogenesis of Y. enterocolitica and Y. pseudotuberculosis in human Yersiniosis. *J Pathog* 2011: 2011:182051.
2. Savin C, Leclercq A, Carniel E. Evaluation of a single procedure allowing the isolation of enteropathogenic Yersinia along with other bacterial enteropathogens from human stools. *PLoS ONE* 2012; 7(7): e41176.
3. El-Maraghi NR, Mair NS. The histopathology of enteric infection with Yersinia pseudotuberculosis. *Am J Clin Pathol* 1979;71: 631–639.
4. Murray PR, Baron EJ, Jorgensen JH, Landry ML, Pfaller MA. Manual of Clinical Microbiology. 9th ed. ASM Press; 2007. 2488 p.
5. Schiemann DA. Synthesis of a selective agar medium for Yersinia enterocolitica. *Can J Microbiol* 1979; 25: 1298–1304.
6. Bottone EJ. Yersinia enterocolitica: overview and epidemiologic correlates. *Microbes Infect* 1999; 1: 323–333.
7. Mahon CR, Lehman DC, Manuselis G. Textbook of Diagnostic Microbiology. 5th ed. Elsevier; 2011. 1076 pp.
8. api 10 S - Identification System for *Enterobacteriaceae* and other non-fastidious Gram-negative rods. bioMerieux SA; 2006.
9. Thornley C. Regional Publich Health - Public Health Alert [Internet]. rph.org.nz. 2014. Available from: http://www.rph.org.nz/content/4f06dbb7-f8ef-4560-aaf4-059ce657c21c.cmr.

Copyright: © 2015 The authors. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.

ORIGINAL ARTICLE

Lower respiratory tract infections among children attending a tertiary hospital in Benin City, Nigeria

Philomena I Ogbogu[1], Rosemary E Omijie[1] and Michael I Ogbogu[2]

[1]University of Benin Teaching Hospital and [2]University of Benin, Benin City, Nigeria

ABSTRACT

Objective: Lower respiratory tract infection (LRTI) is a major cause of paediatric morbidity and mortality, especially among non-affluent communities. Etiology and susceptibility profiles vary with location and time, necessitating periodic review for optimal management.

Methods: Lower respiratory tract specimens were collected from 176 children (one day to 18 years old) with signs and symptoms of LRTI. The specimens were processed to recover microbial isolates and susceptibility tests were performed on bacterial isolates using standard techniques.

Results: The prevalence of culture-positive LRTIs did not differ significantly between both genders (p = 0.824). LRTIs were significantly associated with in-patient children (in-patient vs out-patient: 59.2% vs 37.0%; OR = 2.47 95%; CI = 1.34 - 4.56, p = 0.0055). *Klebsiella pneumoniae* was the most prevalent organism causing LRTI in children. Ofloxacin was the most active antibacterial agent against bacterial isolates from in-patients and out-patients.

Conclusion: An overall prevalence of 46.6% of bacterial LRTI among children was observed. Prudent use of antibiotics is advocated.

Keywords: Lower respiratory tract infections, children, microbial, in-patients, out-patients, ofloxacin, Nigeria

N Z J Med Lab Sci 2015; 69: 53-57

INTRODUCTION

Respiratory diseases are major causes of mortality and morbidity worldwide (1). Respiratory tract infections (RTIs) are perhaps the most frequently reported of all human infection (2). RTIs are one of the major public health problem affecting both children and adult, and is more serious when located in the lower respiratory tract (3). RTIs are the main cause of children's morbidity and mortality in the developing and the developed countries (4). Acute respiratory infections (ARI), particularly lower RTIs, are the leading cause of death among children under 5years of age and are estimated to be responsible for between 1.9 – 2.2 million deaths globally with 42% of the ARI–associated deaths occurring in Africa (5). In non-affluent communities, LRTI in children is a major cause of pediatric morbidity and mortality (6).

In the United Kingdom (UK), the estimated incidence of LRTI is 30 per 1000 children per year. UK data for children seen at hospital with pneumonia (using clinical findings and chest X-ray) 2001 – 2002 found overall incidence rates of 14.4 per 10, 000 in children aged 0 – 16years per annum and 33.8 for those aged $\leq$ 5years (7). In Nigeria, 1.3 episodes of pneumonia per child per year have been reported (8). Age, gender, season, indoor air quality and crowding affect the prevalence of LRTI (4,9,10). Other risk factors include malnutrition, exposure to environmental pollutants such as smoke from domestic cooking with firewood, poor parental income and education, and man-made or natural disasters with consequent living in squatter/ refugee conditions (11).

Children with LRTIs may present life-threatening complications such as massive parapneumonic or pleural effusion, sepsis empyema, pericarditis with cardiac tamponade and venous thromboembolism (3). These complications and death from LRTIs can be prevented by early diagnosis and treatment with appropriate antimicrobial agents. However, the etiology and symptomatology of respiratory disease vary with age, gender, season, type of population at risk and other factors (2). A variety of micro-organisms can cause LRTIs in children, including bacteria, viruses, parasites and fungi (3). However, the World Heath Organization (WHO) reports bacterial infections as the leading cause of LRTIs, especially as a cause of severe illness, among children in developing countries (12). Therapy for bacterial LRTIs is often empirical with the initial choice of antibiotics often based on the knowledge of local epidemiology, the most likely microbial agent and their antibiotic susceptibility pattern (13). Bacterial agents of LRTIs and their susceptibility profiles vary from area to area and with time (14,15). This coupled with reports of increasing resistance of etiological agents of respiratory infections necessitates periodic review for optimal treatment of LRTIs in children. Against these backgrounds, this study aimed to determine the bacterial prevalence of LRTIs among children attending a tertiary hospital in Benin City, Nigeria. Susceptibility profiles of bacterial isolates were also determined.

MATERIALS AND METHODS

Study population

A total of 176 children consisting of 76 in-patients and 100 out-patients with ages ranging from one day to 18years were recruited for this study. All out-patients were attending the chest clinic while the in-patients were on admission, both in the University of Benin Teaching Hospital, a tertiary hospital with referral status. All patients had symptoms of LRTIs. Informed consent was obtained from parents/guardians of the children before specimen collection. The Ethical Committee of the University of Benin Teaching Hospital approved this study.

Collection and processing of specimen

Early morning sputum specimens were collected from each subject while lung aspirates were collected from infants and neonates. Specimens were collected into a wide-mouthed sterile container and transported to the laboratory. Films were made from the sputum specimens and stained by Gram's

method. The presence of numerous pus cells confirmed true sputum and only such specimens were cultured.

Each specimen was inoculated on chocolate, blood and MacConkey agar plates. All plates were incubated aerobically at 37°C for 24 to 48 h except the chocolate agar plates that were incubated in a candle jar. Emergent bacterial colonies were identified using standard techniques (16). All yeast colonies were identified with CHROMagar™ candida (Paris, France) as previously described (17). Susceptibility test for bacterial isolates was performed using the British Society for Antimicrobial Chemotherapy (BSAC) method (18).

Statistical analysis

The data obtained were analyzed using Chi square (X^2) test and odd ratio analysis using the statistical software INSTAT® (GraphPad Software Inc., La Jolla, CA, USA).

RESULTS

A total of 82 (46.6%) out of 176 children with signs and symptoms of LRTIs were culture-positive. Children's gender did not significantly (p = 0.824) affect the prevalence of culture-positive LRTIs, nor did mixed infections (p = 0.107). The prevalence dropped to 32.1% in the age group 7 – 9 years and thereafter began to rise. The prevalence of culture-positive LRTI was significantly affected by age (p = 0.04) with the age group ≤ 1 – 3 years having the highest prevalence of 70%. Children who were in-patients had significantly higher prevalence of LRTIs compared with their out-patient counterparts (p = 0.0055). Similarly, in-patient children had a significantly 1 to 72 – fold risk of having mixed infection than out -patient children (p = 0.0435) (Table 1).

Table 1. Prevalence of lower respiratory tract infection in relation to gender, age and source of patients

Characteristic	No. tested	No. infected (%)	OR	95% CI	p
Gender					
Male	109	52 (47.7)	1.13	0.61 - 2.07	0.824
Female	67	30 (44.8)			
Mixed infection					
Male	109	2 (1.8)	0.23	0.044 - 1.23	0.107
Female	67	5 (7.5)			
Age (days)					
<1 – 3	10	7 (70.0)			0.040
4 – 6	25	16 (64.0)			
7 – 9	28	9 (32.1)			
10 – 12	45	15 (33.3)			
13 – 15	31	15 (48.4)			
16 – 18	37	20 (54.0)			
Patients					
In-patient	76	45 (59.2)	2.47	1.34 - 4.56	0.0055
Out-patient	100	37 (37.0)			
Mixed infection					
In-patient	76	6 (7.9)	8.49	0.999 - 72.09	0.0435
Out-patient	100	1 (1.0)			

OR = odd ratio; CI = Confidence interval

A total of 89 microbial isolates were recovered with more from males (54) than females (35). Generally and among males, *Klebsiella pneumoniae* was the most prevalent isolate followed by *Staphylococcus aureus. S. aureus* was the most prevalent bacterial pathogen in females followed by *Klebsiella pneumoniae* and *Haemophilus influenza,* both with a prevalence of 25.7% each (Table 2).

Table 2. Distribution of microbial isolates in relation to gender

Organism	Gender		Total
	Male (%)	Female (%)	
Klebsiella pneumoniae	24 (44.4)	9 (25.7)	33 (37.1)
Proteus vulgaris	1 (1.9)	0 (0.0)	1 (1.1)
Proteus mirabilis	1 (1.9)	0 (0.0)	1 (1.1)
Providencia spp	0 (0.0)	1 (2.9)	1 (1.1)
Acinetobacter spp	2 (3.7)	0 (0.0)	2 (2.3)
Alcaligenes spp	5 (9.3)	0 (0.0)	5 (5.6)
Haemophilus influenzae	6 (11.1)	9 (25.7)	15 (16.9)
Pseudomonas aeruginosa	2 (3.7)	0 (0.0)	2 (2.3)
Staphylococcus aureus	9 (16.7)	11 (31.4)	20 (22.5)
Streptococcus pneumoniae	2 (3.7)	0 (0.0)	2 (2.3)
Candida albicans	2 (3.7)	5 (14.3)	7 (7.9)
Total	54 (60.7)	35 (39.3)	89 (100.0)

More microbial isolates were recovered from in-patients and in both type of patients *K. pneumoniae* predominated (Table 3).

Table 3. Distribution of microbial isolates among in– and out-patients.

Organism	In–patient (%)	Out–patient (%)	Total (%)
Klebsiella pneumoniae	17 (33.3)	16 (42.1)	33 (37.1)
Proteus vulgaris	1 (2.0)	0 (0.0)	1 (1.1)
Proteus mirabilis	1 (2.0)	0 (0.0)	1 (1.1)
Providencia spp	1 (2.0)	0 (0.0)	1 (1.1)
Acinetobacter spp	2 (3.9)	0 (0.0)	2 (2.3)
Alcaligenes spp	2 (3.9)	3 (7.9)	5 (5.6)
Haemophilus influenzae	6 (11.8)	9 (23.7)	15 (16.9)
Pseudomonas aeruginosa	2 (3.9)	0 (0.0)	2 (2.3)
Staphylococcus aureus	12 (23.5)	8 (21.1)	20 (22.5)
Streptococcus pneumoniae	2 (3.9)	0 (0.0)	2 (2.3)
Candida albicans	5 (9.8)	2 (5.3)	7 (7.9)
Total	51 (57.3)	38 (42.7)	89 9100.0)

The susceptibility profiles of bacterial isolates from in-patient and out-patient children are shown in Tables 4 and 5 respectively. Generally, the susceptibility profiles ranged from poor to high depending on the isolates and the antibacterial agent. In both in- and out-patients, ofloxacin was the most active antibacterial agent.

Table 4. Susceptibility profiles of isolates recovered from in-patients.

Organism	Antibacterial agents (µg/disc)							
	AUG 30µg	CAZ 30 µg	CRO 30 µg	CXM 30 µg	OB 5 µg	CN 10 µg	E 5 µg	OFX 5 µg
Klebsiella pneumonia (n=17)	2 (11.8%)	1 (5.9%)	5 (29.4%)	1 (5.9%)	ND	3 (17.7%)	ND	10 (58.8%)
Proteus vulgaris (n=1)	0	0	1 (100%)	0	ND	1 (100%)	ND	1 (100%)
Proteus mirabilis (n=1)	0	1 (100%)	0	1 (100%)	ND	1 (100%)	ND	1 (100%)
Providencia spp. (n=1)	0	1 (100%)	0	1 (100%)	ND	1 (100%)	ND	1 (100%)
Acinetobacter spp. (n=2)	NA	NA	NA	NA	ND	2 (100%)	ND	2 (100%)
Alcaligenes spp. (n=2)	0	0	0	1 (50.0%)	ND	2 (100%)	ND	2 (100%)
Haemophilus influenza (n=6)	3 (50.0%)	1 (16.7%)	4 (66.7%)	1 (16.7%)	ND	NA	ND	5 (83.3%)
Pseudomonas aeruginosa (n=2)	NA	0	0	NA	ND	0	ND	2 (100%)
Staphylococcus aureus (n=12)	4 (33.3%)	NA	NA	NA	ND	7 (58.3%)	3 (25.00)	9 (95.0%)
Streptococcus pneumonia (n=2)	1 (50.0%)	1 (50.0%)	1 (50.0%)	1 (50.0%)	ND	1 (50.0%)	1 (50.0%)	2 (10%)

AUG = Amoxicillin-clavulanate; CAZ = ceftazidime; CRO = Ceftriaxone; CXM = Cefuroxime; OB = Cloxacilli; CN = Gentamicin; E = Erythromycin; OFX = Ofloxacin; ND = Not done; NA = Not applicable.

Table 5. Susceptibility profiles of isolates recovered from out-patients.

Organism	Antibacterial agents (µg/disc)							
	AUG 30µg	CAZ 30µg	CRO 30µg	CXM 30µg	OB 5µg	CN 10µg	E 5µg	OFX 5µg
Klebsiella pneumonia (n=16)	3 (18.8%)	7 (43.8%)	11 (68.8%)	5 (31.3%)	ND	12 (75.0%)	ND	13 (81.3%)
Acinetobacter spp. (n=3)	NA	NA	NA	NA	ND	2 (66.7%)	ND	3 (100%)
Haemophilus influenza (n=9)	3 (33.3%)	3 (33.3%)	7 (77.8%)	4 (44.4%)	ND	NA	ND	5 (55.6%)
Staphylococcus aureus (n=8)	6 (75.0%)	NA	NA	NA	0	4 (50.0%)	4 (50.0%)	5 (62.5%)

AUG = Amoxicillin-clavulanate; CAZ = ceftazidime; CRO = Ceftriaxone; CXM = Cefuroxime; OB = Cloxacillin; CN = Gentamicin; E = Erythromycin; OFX = Ofloxacin; ND= Not done; NA= Not applicable.

DISCUSSION

Pneumonia – a type of LRTI, is the leading cause of death among children worldwide (11). The prevalence, etiology and antibiotic susceptibility pattern of LRTIs vary with location and time (14, 15), necessitating periodic review for optimal management of children with LRTIs. Against this background, this study was conducted.

An overall prevalence of 46.6% of bacterial LRTI was observed in this study. This is higher than 27%, 24.2% and 18.9% previously reported (10,13,15). The reported prevalence observed in this study is comparable to 47.2% reported by Egbagbe and Mordi (19), but lower than 59.4% reported by Ozyilmaz *et al.* (14) and 58.4% by Ramana *et al.* (20). It has been reported that the prevalence of diarrhea varies with geographic locations, region within the same country and even over time in the same location and population (21). In relation to location Ozyilmaz *et al.* study was conducted in Turkey (14) and Ramana *et al.* study was conducted in India (20), as against our study in Nigeria. In relation to region within the same country, the study by Okesola and Ige was in Ibadan (13) while the study by Akingbade *et al.* was in Abeokuta (10), both in South West Nigeria. Our study was in Benin City in South-South Nigeria. In relation to the same location, the studies by Egbagbe and Mordi (19) and Egbe *et al.* (15) were carried out in the same institution as our current study. It is pertinent to note that these studies cover all age groups in contrast to our study that focused on children.

The prevalence of LRTIs was higher in males (47.7%) than in females (44.8%) which is in agreement with previous studies (10,15,22). The higher prevalence in males has been attributed to decreased local immunity in the respiratory tract due to smoking, use of tobacco and alcohol consumption amongst other factors (23). This reason may only suffice for children between 14 to 18 years. However, this is an unlikely reason as children $\leq$ 1 to 3 years old had a significantly higher prevalence than other age groups in this study ($p = 0.04$). However, LRTIs have been reported as the leading cause of death among children under 5years (5). This may explain our finding in relation to age.

Children who were in-patients had a significantly higher prevalence of LRTI than their out-patient counter-part ($p = 0.0055$). In-patient children may be in the intensive care unit and be immuno-compromised, have other immunosuppressive conditions such as cancer, or have debilitating conditions that may increase their susceptibility to LRTIs (3). Indeed, diarrhea has been reported as a risk factor for acute LRTIs in young children below 3 years in low income settings (24). These conditions may have been present in our in-patient subjects and may explain the findings of our study.

A total of seven out of the 176 specimens (4.0%) yielded mixed microbial growth. The finding of mixed infections have previously been reported (2,3). Gender did not significantly affect the prevalence of mixed LRTI ($p = 0.107$). Mixed LRTI was significantly associated with in-patients (OR = 8.49; 95% CI = 0.999 - 72.09, $p = 0.044$). It is important to note that 94 (53.4%) of the specimens yielded no growth. These may have contained viruses or other microorganisms that could not be detected by the techniques employed in our study.

Generally, *K. pneumoniae* was the most predominant microbial isolate in our study. This agrees with findings from other locations in Nigeria (10,13,15,19). However, studies from other parts of the world report different organisms as the predominant isolate causing LRTI. For example, Brad *et al.* in Timisoara, Romania, reported *Pseudomonas aeruginosa* as the most prevalent bacteria causing LRTI (3). In relation to gender, *K. pneumoniae* was most prevalent in males while *S. aureus* predominated in females in our study, while *K. pneumoniae* was the most prevalent isolate recovered from both in- and out-patients. *Acinetobacter* species were recovered only from in-patients. This agrees with reports that *Acinetobacter* species are associated with hospital-acquired LRTIs (25,26). Other isolates have been reported as causes of LRTIs (13,15).

It is expected that nosocomial isolates would be more antimicrobially resistant than community isolates. This was true only for *K. pneumoniae* isolates. Other bacterial isolates show different patterns depending on the isolate and antibacterial agent. It has been reported that the highest volumes of antibiotic being prescribed and consumed are in ambulatory care (27). Prescription of antibiotics without laboratory guidance, as well as over the counter sales of antibiotics without prescription, are rife in Nigeria and both practices have been implicated as possible reasons for increased antimicrobial resistance observed across the country (28,29). This may explain why some bacterial isolates from out-patients were more resistant to some antibacterial agents than their counterparts from in-patients. Although ofloxacin was the most active antibacterial agent against all bacterial isolates from in-patients and out-patients, it is contraindicated in children.

In conclusion, an overall prevalence of 46.6% of culture-positive LRTIs was observed among children, with in-patients a having higher risk of the infection. *K. pneumoniae* was the most prevalent organism causing LRTIs. Prudent use of antibacterial agents is advocated.

AUTHOR INFORMATION

Philomena I Ogbogu, MPhil MSc AMLSCN, Principal Medical Laboratory Scientist[1]
Rosemary E. Omijie MSc FMLSCN, Assistant Chief Medical Laboratory Scientist[1]
Michael I Ogbogu, MBBS, Chief Medical Officer[2]

[1]Department of Medical Microbiology, University of Benin Teaching Hospital, Benin City, Nigeria
[2]Department of Health Services, University of Benin, Benin City, Nigeria

Corresponding author: Philomena Ogbogu. Email: philogbogu@yahoo.com

REFERENCES

1. Akanbi MO, Ukoli CO, Erhabor GE, Akanbi FO, Gordon SB. The burden of respiratory disease in Nigeria *Afr J Resp Med* 2009; 4: 10 – 17.
2. Khan S, Singh P, Ansari M, Gurung K. Bacteria etiological agents causing lower respiratory tract infections at western part of Nepal. *Ibnosina J Med BS*: 2014; 6: 3 – 8.
3. Brad GF, Sabau I, Boia M, Marcovici T, Craciun A, Nilima K, et al. Trends in bacterial pathogens of lower respiratory tract infections in children. *Timisoara Med J* 2011; *61*: 193 – 198.
4. Boloursaz MR, Lotfian F, Aghahosseini F, Cheraghvandi A, Khalizadeh S, Farjah A, et al. Epidemiology of lower respiratory tract infections in children. *J Compr Ped* 2013; 4: 93 – 98.
5. Williams BG, Gouws E, Boschi-Pinto C, Bryce J, Dye C. Estimates of world-wide distribution of child deaths from acute respiratory tract infections. *Lancet Infect Dis* 2002; 2*:* 25 – 32.
6. da Silva ER, Pitrez PMC, Arruda E, Mattiello R, Sarria EE, de Paula FE, et al. Severe lower respiratory tract infection in infants and toddlers from a non-affluent population: viral etiology and co-detection as risk factors. *BMC Infect Dis* 2013; 13: 41.
7. Harris M, Clark J, Coote N, Fletcher P, Harnden A, McKean M, et al. British Thoracic Society guidelines for the management of community acquired pneumonia in children. *Thorax* 2011; 66: ii1-ii23.
8. Fagbule D, Parakoyi DB, Spiegel R. Acute respiratory infections in Nigerian children: prospective cohort study of incidence and case management. *J Trop Pediatr* 1994; 40: 279 – 284.
9. Kovesi T, Gilbert NL, Stocco C, Fugler D, Dales RE, Guay M, et al. Indoor air quality and the risk of lower respiratory tract infections in young Canadian Inuit children *CMAJ* 2007; 177: 155 – 160.
10. Akingbade OA, Ogiogwa JI, Okerentugba PO, Innocent-Adiele HC, Onoh CC, Nwanze JC. et al. Prevalence and antibiotic susceptibility pattern of bacterial agents involved in lower respiratory tract infections in Abeokuta, Ogun State, Nigeria. *Rep Opinion* 2012; 4: 25 – 30.
11. Johnson WBR, Abdulkarim AA. Childhood pneumonia in developing countries *Afr J Resp Med* 2013; 8: 4 – 9.
12. World Health Organization (WHO). Management of the young child with acute lower respiratory tract infection. WHO Programme for the Control of Acute Respiratory Infections. WHO, Geneva. 1990.
13. Okesola AO, Ige OM. Trends in bacterial pathogens of lower respiratory tract infections. *Indian J Chest Dis Allied Sci* 2008; 50: 269 – 272.
14. Ozyilmaz E, Akan OA, Gulhan M, Ahmed K, Nagatake T. Major bacteria of community-acquired respiratory tract infections in Turkey. *Jpn J Infect Dis* 2005; 58: 50 – 52.
15. Egbe CA, Ndiokwere C, Omoregie R. Microbiology of lower respiratory tract infections in Benin City, Nigeria. *Malays J Med Sci* 2011; 18*:* 27 – 31.
16. Barrow GI, Feltham RKA. Cowan and Steel's Manual for the Identification Medical Bacteria. 3rd Edn. Cambridge (UK). Cambridge University Press Cambridge. 2003.
17. Paritpokee S, Hall G, Procop G. Rapid identification of yeast isolates using BD BBLTM CHROMagar Candida. Paper presented at the 105th General Meeting of the American Society for Microbiology. 2005; 1 – 2.
18. Andrew JM. BSAC standardized disc susceptibility testing method (version 8). *J Antimicrob Chemother* 2009; 64: 454 – 489.
19. Egbagbe EE, Mordi RM. Aetiology of lower respiratory tract infection in Benin City, Nigeria. *J Med Biomed Res* 2006; 5*:* 22 – 27.
20. Ramana KV, Kalaskar A, Rao M, Rao SD. Aetiology and antimicrobial susceptibility patterns of lower respiratory tract infections (LTRI's) in a rural tertiary care teaching hospital at Karimnagar, South India. *Am J Infect Dis Microbiol* 2013; 1: 101 – 105.
21. Petri WA Jr, Miller M, Binder HJ, Levine MM, Dillingham R, Guerrant RL. Enteric infections, diarrhea, and their impact on function and development. *J Clin Invest* 2008; 118: 1277 – 1290.
22. Taura DW, Hassan A, Yayo AM, Takalmawa H. Bacterial isolates of the respiratory tract infection and their current sensitivity pattern among patients attending Aminu Kano Teaching Hospital, Kano, Nigeria. *Int Res J Microbiol* 2013; 4: 226 – 231.
23. Gauchan P, Lekhak B, Sherchand JB. The prevalence of lower respiratory tract infection in adults visiting Tribhuvan University Teaching Hospital. *J Institute Med* 2006; 28: 10 – 14.
24. Walker CL, Perin J, Katz J, Tielsch JM, Black RE. Diarrhea as a risk factor for acute lower respiratory tract infections among young children in low income settings. *J Glob Health* 2013; 3: 010402.
25. Carroll KC. Laboratory diagnosis of lower respiratory tract infections: controversy and conundrums. *J Clin Microbiol* 2002; 40: 3115 – 3120.
26. Anvari MS, Naderan M, Boroumand MA, Shoar S, Bakhshi R, Naderan M. Microbiologic spectrum and antibiotic susceptibility pattern among patients with urinary and respiratory tract infection. *Int J Microbiol* 2014; 2014:682304.
27. Adriaenssens N, Coenen S, Versporten A, Muller A, Minalu G, Faes C, et al. European surveillance of antimicrobial consumption (ESAC): outpatient antibiotic use in Europe (1997 – 2009). J Antimicrob Chemother 2011; 66 Suppl 6: vi3 – vi12
28. Okeke IN, Lamikanra A, Edelman R. Socioeconomic and behavioral factors leading to acquired bacterial resistance to antibiotics in developing countries. *Emerg Infect Dis* 1999; 5: 18 – 27.
29. Omoregie R, Eghafona NO. Urinary tract infection among asymptomatic HIV patients in Benin City, Nigeria. *Br J Biomed Sci* 2009; 66: 190 – 193.

Copyright: © 2015 The authors. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original authors and source are credited.

Imagine a 5 year extended shelf life

For more than 40 years Thermo Scientific™ MAS® has pioneered QC innovation from liquid-ready-to-use quality controls to the first line of premium consolidated 3rd party QC. **Today we introduce our first clinical chemistry quality control with an extended shelf life of 5 years***. Imagine fewer QC lot changes, saving both time and money.

Thermo Scientific MAS Liquimmune is a liquid-ready-to-use immunoassay control covering the fertility, thyroid, endocrine and allergy analytes. Along with comprehensive value assignment and our simple to use LabLink xL quality assurance program, you can now add industry-leading shelf life as a reason to choose Thermo Scientific MAS quality controls.

helping you simplify QC

• see the full breadth of bold progress at thermoscientific.com/qc
email us at nzinfo@thermofisher.com or phone 0800 933 966

Thermo SCIENTIFIC
A Thermo Fisher Scientific Brand

©2015 Thermo Fisher Scientific. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries

Untitled-1 1 12/06/2015 10:33:27 a.m.

Health Practitioners Disciplinary Tribunal Decisions

File No: MLS 14/275P

Charge

A Professional Conduct Committee (PCC) charged that Mr Charles Gerald Laverty, Medical Laboratory Scientist, formerly of Tauranga and Gisborne (the Medical Laboratory Scientist) practised the profession of a medical laboratory scientist between 1 April 2008 and 31 March 2013 without holding a current practising certificate.

Finding

The Tribunal found the Medical Laboratory Scientist, guilty of practising without a practising certificate and the charge was established.

Background

In mid-2004 the Medical Laboratory Scientist, immigrated to New Zealand. When he arrived he had the necessary immigration status entitling him to live and work in New Zealand. In July 2004 he achieved registration with the Medical Sciences Council of New Zealand (the Council) and in September 2004 the Council approved him within the Medical Laboratory Scientist Scope of Practice.

However, from 1 July 2007 he did not have the right to live or work in New Zealand. Notwithstanding, his lack of immigration status and the fact he did not have a valid practising certificate from 1 April 2008, he continued to live in New Zealand and work as a medical laboratory scientist. The immigration authorities eventually caught up with him, and he was deported in late 2013.

Reason for Finding

The Tribunal considered the three elements which were required to be proven by the PCC were all established as follows:

1. The Medical Laboratory Scientist was registered during the dates set out in the charge.
2. He practised in the profession of a Medical Laboratory Scientist during the dates set out in the charge.
3. He did not hold a current practising certificate during those dates.

Penalty

The Tribunal considered there were a number of aggravating factors when the facts of this case were compared to other cases where a practitioner has practised without a practising certificate.

The Tribunal ordered that the, Medical Laboratory Scientist:

- be censured;
- be deregistered ; and
- pay costs of $21,027.20.

The Tribunal directed the Executive Officer to publish a copy of this decision and a summary on the Tribunal's website. The Tribunal further directed the Executive Officer to publish details of this decision in the, Medical Laboratory Scientists Annual Report and the Journal of the NZ Institute of Medical Laboratory Science Inc.

The full decision relating to this case can be found on the Tribunal website at www.hpdt.org.nz reference no: MLS 14/275P.

File No: MLS 14/294P

Charge

A Professional Conduct Committee (PCC) charged that Medical Laboratory Scientist, practised the profession of a medical laboratory scientist between 15 October 2012 and 14 March 2014 without holding a current practising certificate.

Finding

The Tribunal found the Medical Laboratory Scientist, guilty of practising without a practising certificate and the charge was established.

Background

The Medical Laboratory Scientist had held annual practising certificates (APCs) from 1 April 2007 through to 31 March 2012.

At the end of 2011 she took parental leave and during her period of parental leave her APC expired (on 31 March 2012). She returned to work in October 2012 and unintentionally failed to apply for a renewal of her practising certificate for the practising year which had commenced on 1 April 2012 and which was to go through until 31 March 2013.

In March 2014 the Medical Laboratory Scientist's colleagues received email reminders from the Medical Sciences Council to renew their practising certificates. The Medical Laboratory Scientist did not receive a similar reminder and it was at this time she realised that she should have renewed her practising certificate when she returned to work in October 2012.

She had not received a reminder as email reminders are only sent to practitioners who currently hold an APC and she had not held one since 2011/2012 practising year. She applied for an APC on about 25 March 2014 and declared truthfully that she had been practising without a practising certificate and paid the fees retrospectively that were payable for the period she had not held an APC.

Reason for Finding

The Tribunal considered the three elements which were required to be proven by the PCC were all established as follows:

1. The Medical Laboratory Scientist was registered during the dates set out in the charge.
2. She practised in the profession of a Medical Laboratory Scientist during the dates set out in the charge.
3. She did not hold a current practising certificate during those dates.

Penalty

The Tribunal considered there were a number of mitigating factors as follows:

- she admitted her offending, apologised and took immediate steps to remedy the situation;
- her offending did not involve any deception or deliberate action;
- it was her first offence;
- she was otherwise regarded as competent;
- the offending did not cause any risk to public safety; and
- the practitioner was unlikely to reoffend.

The Tribunal ordered that the, Medical Laboratory Scientist:

- be censured;
- pay a fine of $1000; and
- pay costs of $5000.

The Tribunal directed the Executive Officer to publish a copy of this decision and a summary on the Tribunal's website. The Tribunal further directed the Executive Officer to publish details of this decision in the, Medical Laboratory Scientists Annual Report and the Journal of the NZ Institute of Medical Laboratory Science Inc.

The full decision relating to this case can be found on the Tribunal website at www.hpdt.org.nz reference no: MLS 14/294P

Letter to the Editor

To the Editor

CORRECTION TO ANTIBIOTIC-RESISTANT ESCHERICHIA COLI IN A MAJOR NEW ZEALAND RIVER ARTICLE

Thank you for alerting us to the potentially misleading material in our paper published in the April 2015 issue of the Journal (1). In regard to the question (question 3, April 2015 Journal questionnaire) of how many isolates of antibiotic resistant Escherichia coli were detected in 2004 and 2012, the correct answer should be "three in 2004 and six in 2012".

There were however, two isolates of multiply antibiotic resistant E.coli isolated in 2004, and six in 2012. The term "multiply antibiotic resistant", or multiply drug resistant (MDR) bacteria refers only to those exhibiting antibiotic resistance in two or more classes of antibiotics, while "antibiotic resistant bacteria" refers to resistance to one or more classes of antibiotics. This confusion is compounded in the conclusion of the paper, where we refer to the finding of multiply antibiotic resistant E.coli "on two further sites, both East and West of the 2004 sites."

Unfortunately this phrase implied that a total of two additional sites were found. In fact, the intention was to convey the observation that a total of four were found, two in the East, and two in the West. The correct sentence should have clearly stated "but by 2012 found on two further sites, both East and West of the 2004 sites".

We apologise for this error, and take this opportunity to correct the paper.

Dr Mona Schousboe, MPH FRCPA, Microbiologist[1]
John Aitken, NZCS COP, Principle Scientist[2]

[1]Microbiology Department, Canterbury Health Laboratories, Christchurch
[2]Otakaro Pathways Ltd., Christchurch

REFERENCE

1. Schousboe MI, Aitken J, Welsh TJ. Increase in antibiotic resistant Escherichia coli in a major New Zealand river: comparison between 2004 and 2012 – an interval of 8 years. *N Z J Med Lab Sci* 2015; 69: 10-14

Fellowship of the NZIMLS

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 qualifications at a fraction of the cost.

Recently, changes to the regulations have been made, the main one doing away with the examination route to Fellowship.

Fellowship of the NZIMLS may be gained by thesis, by peer reviewed publications; or by treatise in case of a member holding an appropriate postgraduate or professional qualification.

Thesis

The thesis must be based on the style of Master of Science by thesis requirement of New Zealand universities.

Publications

A minimum of ten peer reviewed publications in international or discipline acknowledged biomedical journals. The candidate must be the 1st or senior author of at least six of these publications. A comprehensive review of the submitted publications is also required.

Treatise

By submission of a treatise in the form of a dissertation of 3000 - 5000 words on a medical laboratory science subject. 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

Candidates going for Fellowship by this route must be holders of at least a Master's degree in medical laboratory science or a closely related subject; or have a professional qualification such as Fellowship of the following professional bodies: the Australian Institute of Medical Science; the Institute of Biomedical Science; the Faculty of Science of the RCPA, the Australian Association of Clinical Biochemists, or the Royal Institute of Biology (London).

Fellowship Committee

The Fellowship Committee comprises three current Fellows from whom further information can be obtained. They are:

- Rob Siebers (Chair) rob.siebers@otago.ac.nz
- Ann Thornton ann.thornton@otago.ac.nz
- Jillian Broadbent cpd@nzimls.org.nz

For full Fellowship regulations and the application process visit the NZIMLS web site at www.nzimls.org.nz

Current Fellows

Jenny Bennett
Mark Bevan
Jillian Broadbent
Ailsa Bunker
Jennifer Castle
Jan Deroles-Main
Marilyn Eales
Susan Evans
Christine Hickton
Sheryl Khull
Michael Legge
Christine Leaver
Howard Potter
Maxine Reed
Mohd. Shahid
Robert Siebers
Andrew Stewart
Vanessa Thomson
Vasanthan Thuraisamy
Jacqueline Wright
Rubee Yee
Sheryl Young

News from the Universities

Otago University

Over the inter-semester break, the Otago BMLSc programme hosted eight students and the Course Director of the BMLS programme from Fiji National University. Their arrival coincided with a particularly cold snap, and for most of the students their first morning in Dunedin was their first encounter with snow. Fortunately, Course Director Margaret Baekalia is an Otago graduate, so had ensured they had plenty of winter woollies!

After an official welcome and introductions, the group were given a tour of the Pathology Department, including teaching and research laboratories, and the zebrafish facility which is used for researching cancer, developmental disorders, stem cell biology and epigenetics. A tour of the wider Otago University campus featured the historic Clocktower and new central library. The group also visited the NZ Blood Service facility and Southern Community Laboratories at Dunedin Hospital and Plunket House.

There was a strong educational component to the visit, with a case-based tutorial and practical focusing on diabetes, cardiovascular disease and anaemia, discussing interferences and troubleshooting. Students performed haemoglobin electrophoresis, Lancefield typing, and analysed samples on the Roche Modular for glucose, lipids, U&E and glycated haemoglobin. A morphology tutorial encompassed different anaemias and a case of acute myeloid leukaemia.

Following a visit to the University's Microbiology department, they attended a seminar given by Otago BMLSc graduate and MMLSc student Rowan Thomas about his current research on the molecular detection of diarrhoea-causing bacteria. Associate Professor Sarah Young gave a lecture about new research and developments in immunology. A highlight was a tour of our Pathology Museum, where students looked at specimens showing features of cardiovascular disease and complications of diabetes.

During a farewell afternoon tea, Otago staff were treated to a lovely song and gifts from Margaret and her students. We will hopefully work together in the future, as there was considerable interest in our postgraduate degrees in Medical Laboratory Science and on-going collaboration as part of a memorandum of understanding between the two universities.

The New Zealand Institute of Medical Laboratory Science (Inc)

2016 Annual Scientific Meeting

Energy Events Centre, Rotorua

16—19 August 2016

Save the date!

Leica
BIOSYSTEMS

Leica CM1860/CM1860UV
for standard applications in the clinical histopathology laboratory

Cryosectioning Solutions

Clinical Applications

Leica cryostats help you meet requests for immediate results by quickly, reliably & safely cutting accurate frozen sections

Research Applications

With the added benefits of all-day operator comfort & research-specific features, **Leica** research cryostats let you make critical dis-coveries sooner

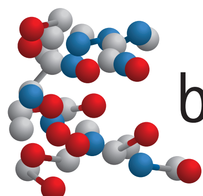
Leica CM1950
for higher quality sectioning, increased user safety, and more efficient workflow

Reduced Infection Risk

Leica CM1860UV & CM1950
with ozone-free UVC disinfection

- Quick disinfection after 30 to 40 minutes
- No warming of the cryochamber is required
- Independently tested; the results confirm the germicidal effect of UVC disinfection

Chemical disinfectants are not only toxic for the user but are also awkward to use and dispose of



bio-strategy
delivering technology

www.bio-strategy.com | 0800 34 24 66

North Island Seminar 2015

The 2015 North Island Seminar was held at the Distinction Hotel in Rotorua on 9 May, with 144 delegates attending.

Murray Robinson from Pathlab BOP provided the first presentation of the day in which he described the path to implementation of Microbiology automation in his laboratory. His video clips of the automation in action were particularly impressive and undoubtedly made many in the room green with envy. Fale Tomu from LabPlus then gave an insight into the requirements for providing a return to patient service for body parts and tissues. The next speaker was Barbara Hoy from Waikato Hospital who presented a very interesting case study on a patient with Pure Red Cell Aplasia secondary to rEPO. Dr David Holland, an infectious diseases physician from Middlemore Hospital then gave an excellent talk on the spread of Ebola in Africa, risks to healthcare workers, New Zealand's approach to screening travellers at airports and the development of a bio-containment unit at Middlemore Hospital. This was followed by an auto-immune hepatitis case study by Theresa Chikunda from Te Kuiti Hospital laboratory. The final presentation for the morning session was provided by Ailsa Bunker from Middlemore Hospital discussing what patients want and how the laboratory delivers this with a particular focus on the phlebotomy service.

Following a superb lunch, Janet Ross from the Cytogenetics department at Waikato Hospital, reviewed the impact of cytogenetic results in Multiple Myeloma. The next speaker was Ceryn Hutin, Laboratory Services Rotorua, who presented a case study on new born twins presenting with JMML and found to have Noonan Syndrome. At this point in the programme, the battery in the microphone decided to die an untimely death. The next speaker however, Ajesh Joseph from Waikato Hospital, managed perfectly well without it and delivered an informal and entertaining look at the current challenges and future automation for pre-analytics including robotic blood collection! By the time Ajesh concluded his talk, a mildly stressed seminar convenor had managed to locate a fresh battery and the microphone was back in action for Mel Olds from Fertility Associates in Wellington. Mel delivered a fascinating talk on embryology along with stunning video clips of IVF techniques and time lapse photography of embryo development. The final presentation before the afternoon tea break by Karin Norman, CNM of the Satellite Renal Unit at Rotorua Hospital, looked at the what, why and when of laboratory testing for renal patients.

Following ice cream cones for afternoon tea, Raewyn Cameron from Laboratory Services Rotorua, discussed the implementation of a Massive Transfusion Protocol. Mary Southee then presented the safety improvements in phlebotomy that have been implemented at Capital and Coast DHB over the past years. And to conclude the day, Waereti Paraki from the Mortuary at Rotorua Hospital gave a well presented and informative talk on cultural sensitivity in the Mortuary.

Thank you to all the speakers. It was great to have such a diverse range of subjects covering virtually all disciplines of Medical Laboratory Science. All the presentations were of a high standard. Congratulations to Mel Olds, winner of the prize for best presentation and to Cerin Hutin as runner up.

Drinks and nibbles were provided at the conclusion of the seminar, facilitating opportunity for a final catch up with friends and colleagues. Thank you to Jo Hartigan for her help in organising the programme and also to Raewyn Cameron and Bobby Tagore for chairing sessions.

Mary-Ann Janssen
Seminar Convenor

Mel Olds receives the Best Presentation prize from Rob Siebers

Cerin Hutin receives the Best Presentation Runner-up prize from Rob Siebers

Mary-Ann Janssen presents Linda Harrison, phlebotomist from Waikato Hospital was presented with an award for joint top mark for the Phlebotomy QMLT exam for 2014.

NICE WEEKEND 2015

The 26th National Immunohaematology Continuing Education (NICE) weekend was held over the 17th and 18th of May at the Bayview Wairakei Resort in Taupo. Over the weekend we were treated to fifty five unique and interesting presentations seven more than the previous year. Also on show over the weekend were 6 discussion stimulating poster presentations. All presenters and poster writers did an outstanding job in preparation and displaying their posters and presentations. All topics varied in range and calibre, from clinical right through to immunohistocompatibility.

Congratulations to all those attendees who took away awards for their presentations/poster

- The Abbot Award for best overall presenter went to Elisabeth Brown (NZBS Waikato) - Waldenstrom's Macroglobulinaemia
- The Ortho Clinical Diagnostics Award for Most Promising Transfusion Scientist went to Julia Van Essen and Charlotta Passe (NZBS Christchurch) - Vincristine Platelets
- The Pharmaco Award for best poster went to Kim McKinley (SCL Invervcargill) - Coagulopathies
- The CSL Biotherapies award for a NZ attendee to attend NICE Australia was this year won by Alison Badger (NZBS Auckland)
- The award sponsored by BioRad for the best first time speaker. This is a presenter who has never attended NICE weekend before, giving them the title of NICEst Virgin went to Dorothy Murphy (MedLab Wairarapa) – Against the Odds
- Congratulations must also go to Wilson Shum (NZBS Auckland), Adriana Pacuraru (NZBS Auckland), Samia Hussain and Aous Al-Ibousi who received honourable mentions for their poster and presentations.

The statistics:
NICE 2015 was attended by 79 people in total including 18 trade representatives, one sponsored convener, one sponsored student, 63 delegates including one participating TMS and one Australian visitor. Of these 53 were NZIMLS members and 24 where non-NZIMLS members.

The theme for this year's NICE weekend was Do-Re-Mi – all attendees dressed in astonishing and creative costumes, this year provided an evening of fun for all which included the first ever parade.

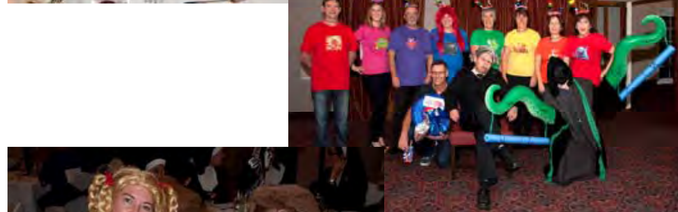
A special mention must go to Lorna Wall who has taken over the role of TSSIG Convenor from Holly Perry for completing her first year. Another big thank you to the judges who had a very tough role as this year was their greatest challenge yet.

A huge thank you on behalf of all must be extended to our amazing NICE Conveners – Raewyn Cameron and Natalie Fletcher. They delivered yet another spectacular educational weekend, so on behalf of the TSSIG and the wider NICE group I would like to extend a huge Thank You. We look forward to NICE 2016.

Aous Al-Ibousi
TSSIG Committee member

NICE 2015 Prizewinners: (left to right) Julia van Essen, Charlotta Passe, Emma McLaren (Sponsored Student), Dorothy Murphy, Elisabeth Brown, Alison Badger

Lorna Wall (TSSIG Convenor) and NICE Convenors Natalie Fletcher and Raewyn Cameron



NICE Dinner Photographs supplied by Greg Scheurich

Biochemistry Special Interest Group 2015

June 13th saw a highly successful Biochemistry Special Interest Group held at the Distinction Hotel in Palmerston North, hosted by the staff of Aotea Pathology. The meeting was well supported with more than 60 attendees from both laboratory and industry groups and covered a good range of topical issues.

The meeting was opened with an invitation for people attending these types of meetings to seriously consider contributing and also for laboratory managers to consider those staff members who do contribute as more preferable when spreading CPD funding across their organisations. That being said, there was an unprecedented level of participation on the day, which was really great to see.

Invited speakers included Dr Elayne Knottenbelt, a clinical haematologist from Palmerston North who gave us a very clinical perspective on the numerous iron studies we perform daily; and Dr Janice Thompson from Gribbles Veterinary Laboratory who spoke about liver function testing in ruminants, with the fact that facial eczema is actually an acute porphyria in animals. Dr Hillary Hamnett, ESR forensic toxicologist, gave us a truly fascinating talk on new psychoactive substances, and even provided “examples” of the various drugs for us to actually have a look at. This particular presentation was extremely popular, and gave everyone a much better clinical perspective on the work of “real” as opposed to “TV” forensic analysis. Nadia Anderson, from ESR, shared her prize-winning Ovarian Hyperstimulation Syndrome presentation with us and again gave us an insight into the human side of the testing we do for fertility clinics and their patients; and Dr Bruce van den Heever gave a very comprehensive presentation on Addisons disease, highlighting the impact changes in cortisol kit formulation and calibration can impact diagnosis of this condition.

Virginia Nairn from Wanganui Medlab, gave us our first lipid talk for the day with particular focus on pancreatitis associated with hypertriglyceridaemia,. This presentation was complemented with a lab based presentation on the management of lipaemic samples in everyday analysis by Barbara Dallas from Hutt Hospital; and a case study titled “The incredible shrinking woman” from Louise Robertson from Aotea Pathology, covering familial hypercholesterolaemia and the Paleo diet, and again putting a very human face onto the results that we produce.

An interactive session after lunch from Max Reed from Aotea Pathology gave 10 different “what went wrong” scenarios for discussion. This was well received, especially with the assistance of Jules Lynch (also from Aotea Pathology) who was charged with the distribution of the chocolates in response to input from attendees. Rafael Sardea from Labtests presented a case study involving the differences between albumin:creatinine ratios and protein:creatinine ratios, as well as the merits of looking “beyond the numbers” we produce to the actual reasons for these numbers and the patients at the their source.

The award for best presenter went to Ashleigh Cotton from Aotea Pathology for her presentation entitled “Raised globulins in diabetic patients – a reason to exclude reflex electrophoresis”. This was a retrospective study investigating the merits of adding protein electrophoresis to diabetic patients with moderately elevated globulin levels, and at what level the most benefit can be gained.

Jillian Broadbent gave us a run down of proposed changes to the NZIMLS CPD programme; and the day came to a close with a presentation from Rob Siebers, outlining how to convert oral presentations into articles for the NZIMLS Journal, and the “do’s and don’ts” of writing scientific papers. All-in-all a very successful, educational and social day, with great participation and networking opportunities for everyone who attended.

Thanks to all the Aotea Pathology staff who helped with the organisation of this event, in particular Kim Allan and Louise Robertson. Thanks again to our sponsors, Abbott Diagnostics, Beckman Coulter, BioRad and Roche, and to our session chairs, registration crew and of course, the NZIMLS Executive Office.

Ashleigh Cotton receiving the BSIG Best Speaker prize from Jillian Broadbent

Jules Lynch receiving the 2014 NZIMLS QMLT award from Jillian Broadbent at the BSIG

Max Reed
Seminar Convenor

Microbiology Special Interest Group 2015

The 2015 Microbiology Special Interest Group meeting was held at the Novotel Hotel in Hamilton on the 13th June. 120 Delegates attended. The first two talks of the day centred on faecal parasite PCR – and *Entamoeba histolytica* cases that were affected by the implementation of a PCR assay to detect parasites. Kiri Rhodes from SCL Dunedin presented the overview of the implementation of the PCR and the benefits, and Annemarie De Ruyter also from SCL Dunedin talked about the interesting cases. Naveena Kariki from ESR Wallaceville followed with a talk about the *Yersinia pseudotuberculosis* outbreak that occurred in late 2014. Dr Chris Mansell a clinical microbiologist from Waikato Hospital spoke next about the rise in *Actinomyces* isolation since the implementation of MALDI-TOF technology at Waikato Hospital, and the rise in previously difficult to identify organisms due to this technology. Following Dr Mansell was Albert Delorino, also from Waikato Hospital and he presented an interesting case of bacterial meningitis. Ginna Alston from Canterbury Health Laboratory then presented a rare and interesting case of *Cladophialophora batiana* infection. Running about 30 minutes ahead of time we managed to squeeze in an extra speaker who had kindly offered to be available for such an occasion. Holly Beall from Pathlab Waikato told us about the new risk factor based approach to enteric testing that was being employed at Pathlab Waikato and Pathlab BOP.

After lunch Murray Robinson from Pathlab Bay of Plenty provided us with an interesting and political talk about the centralisation of microbiology work in Bay of Plenty, giving the reasons behind the move, as well as presenting some of the political controversy that went with it. Roger Athersuch from Medlab Central followed with an interesting history lesson on puerperal sepsis, followed by a few more recent cases. The next talk was given by Shane Ayrton from Thames Hospital, and he gave us an insight into working at a rural laboratory, as well as a mystery case that had everyone guessing until the end. Patsy Paterson from Medlab Timaru followed Shane with an interesting talk about *Corynebacterium striatum* and its existence as a possible emerging pathogen. The last talk of the middle session was given by Dr Erana Gray, infectious disease physician at Waikato Hospital, first of all about a case of *Staphlylococcus pseudintermedius* and then sharing some experiences of working with scabies patients in the Northern Territory of Australia.

Following afternoon tea Jenny Bennett from Waikato Hospital gave us an insight into the change to PCR testing for leptospirosis in the Waikato. Ameeta Chand from Middlemore Hospital followed her with a talk outlining the changes in strategies to detect carbapenemase resistant organisms at Middlemore Hospital. The penultimate talk of the day was given by Bhamini Chhotu from LabPlus and was an overview of atypical pneumonia. The SIG Convener stepped up to give the final talk of the day, a case of gastroschisis with a probiotic twist.

Mary-Ann Jansen then gave a quick NZIMLS update before we handed out the prizes. Congratulations went to Albert Delorino from Waikato Hospital for best presenter on the day and to Pasty Paterson from Medlab Timaru as runner-up. A big thank you to all the speakers, we had a great range of topics and all the presentations were of a high standard. Thanks must also go to Rashmi Mistry who was a co-organiser of the programme and also to Jennifer Lindeman for chairing one of the sessions.

Sean Munroe
MSIG Convenor

Albert Delorino receivies the Best Presentation prize from Sean Munroe

Patsy Paterson receiving the Best Presentation Runner-up prize.

THE *Pacific* WAY

Wellington based training courses 2015

Haematology

The haematology course for 2015 which commenced on the 2nd March and concluded on the 27th March once again was an excellent learning opportunity for the students who attended. The five students included Epitani Vaka from Tonga, Stephen Able and Terry Kalorib from Vanuatu, Maud Faumuina from American Samoa and Barieti Itaaken from Kiribati) .

Phil Wakem the PPTC's CEO and haematology specialist was the principal lecturer for this course and the PPTC is very grateful to Elizabeth Tough, chief morphologist, Haematology Dept, Wellington Hospital, for sharing her expertise and experience in blood - borne parasitology with the students. Elizabeth was also our guest speaker and presenter to the students on graduation day.

Stephen Able and Elizabeth Tough

Haematology class 2015 students and PPTC staff

Health and safety and infectious diseases

The health and safety and infectious diseases course provided by the PPTC commenced on the 13th April and concluded on the 8th May. Russell Cole, the PPTC's laboratory quality manager and microbiology expert, was the principal lecturer for the duration of this course and must be congratulated for its success especially as it was a new course introduced this year. The five students who attended this course were as follows:
Mr Semisi Lenati from Tonga; Elaine Hevoho, Pamela Umbu and Fova Naoka from Papua New Guinea and Makerita Ieremia from Samoa.

The PPTC wishes to thank Manisha Morar (quality assurance and occupational health administrator, Aotea Pathology), Ricky Benn (medical laboratory scientist, Wellington Hospital Biochemistry Dept.) and staff from ESR for donating their valuable time to our students over the duration of the course.

Health and safety 2015 : students and PPTC staff

The three remaining courses for this year which are to be offered at the Centre in Wellington include:

Microbiology:	31st August – 25th September 2015
Phlebotomy:	5th October – 23rd October 2015
Blood transfusion science:	2nd November – 27th November 2015

The PPTC regional external quality assessment (REQA) programme

The PPTC wishes to welcome our new REQA biochemistry coordinators:

Max Reed and Filipo Faiga

Filipo Faiga is currently biochemistry section head at Wellington Hospital, a PPTCBoard member and an experienced biochemistry consultant who has worked with the PPTC for many years.

The PPTC has great pleasure in welcoming Max Reed to the PPTC in the capacity of joint co-ordinator for the PPTC's REQA biochemistry programme. Max is currently HOD of biochemistry and haematology at Aotea Pathology Ltd, Wellington. She is a fellow of the NZIMLS, a member of the AACB and is the NZ representative on both the AACB education committee and harmonisation working Group. She has worked in both hospital and private laboratory settings and has a particular interest in education in all areas of laboratory medicine, having been involved in moderating the NZ university courses in medical laboratory science, as well as tutoring and mentoring scientist, technician, phlebotomy and specimen reception candidates in both their examination and continuing education goals.

Now that the PPTC's REQA programme has expanded to 65 laboratories Pacific wide, both Maxine and Filipo have agreed to share the biochemistry co-ordinators role now that Clare Murphy has retired, and we are very grateful to them both. Maxine will oversee the Cambodian programme while Filipo will oversee the Pacific programme.

Overseas travel

Tonga

On the 18th May, Susan Evans (supervising scientist - Wellington Blood Bank, New Zealand Blood Services) travelled to Tonga at the request of the PPTC as a consultant for blood transfusion services and carried out teaching and training at Vaiola Hospital in blood banking. This visit was of great benefit to the laboratory in terms of Sue's wealth of experience and expertise and there is a strong possibility that a return visit will be made nearing the end of the year to assess and evaluate the progress of good practise that she was able to initiate during her visit.

Samoa

Between the 25th and 29th May, Phil carried out a laboratory quality management visit to Apia's National Hospital primarily for the purposes of process improvement within the haematology laboratory. Filipo is scheduled to visit Apia's National Hospital for two weeks in July-August to carry out biochemistry training. During the two weeks, Filipo will also visit Savaii to assess the laboratory overall in terms of its quality systems.

Marshall Islands

Both Phil and Russell visited the Marshall Islands from the 15th - 19th June to facilitate further implementation of principles and concepts of the laboratory quality management programme and monitor its progression since the last visit in June 2014.

Cambodia and the PPTC's regional external quality assessment programme

WHO Cambodia have requested that the PPTC provide four weeks of teaching and training in Cambodia to enhance the REQA performance of the Cambodian laboratories currently registered on the PPTC's REQA programme. Phil and Navin Karan (PPTC programme manager) will provide the first workshop in July and a second workshop will be provided by Phil and Russell later in the year.

Vanuatu

Russell and Navin are scheduled to visit Vanuatu between the 6th and 10th July to assess progress of laboratory quality management implementation in the laboratories of both Port Vila and Espiritu Santo. Visits to Vanuatu have been placed on hold in past months due to the devastation of cyclone Pam and the disruption to services within Vanuatu. The country is beginning to recover slowly and the PPTC can now continue its valuable work in promoting quality throughout each of the laboratories diagnostic processes.

Desperate need for pathologists in the Pacific

Most Pacific laboratories do not have the luxury of recruiting and financially supporting full time pathologists. With reference to a very small number of Pacific laboratories that are supported by a general pathologist, medical oversight of the diagnostic services has proved to be extremely valuable in terms of relationship development between hospital clinicians and the laboratory, critical diagnostic interpretation, service accountability and assistance given to the PPTC in its pursuit of laboratory quality management throughout all laboratory processes.

In 2016 the PPTC will consider the establishment of a scheme to recruit New Zealand pathologists on a temporary/rotational basis to visit laboratories in the Pacific region offering clinical/ diagnostic and managerial expertise. In defining a pathologist, the PPTC refers to discipline specific specialists including haematologists, cytologists, anatomic pathologists, microbiologists, chemical pathologists and immunohaematologists. The main advantage of a rotational system is that a selection of pathologists who are specialists in their own field could be commissioned if possible by the PPTC at different times throughout the year. The consultancies could vary between one week and four weeks and the duration of stay would be dependent on the current need each country's health system has identified.

Dr Julia Phillips (resident haematologist, Wellington Hospital) will accompany Phil on visits to Tonga and Samoa in the second half of this year, and possibly Vanuatu later in the year for the purpose of haematology training in blood film examination, cell recognition and clinical interpretation. Julia will also interact with clinical staff to identify haematological issues and strengthen diagnostic processes.

For pathologists who are interested in short term consultancies in the Pacific Islands, please contact Phil Wakem at the PPTC for further information (pptc@pptc.org.nz).

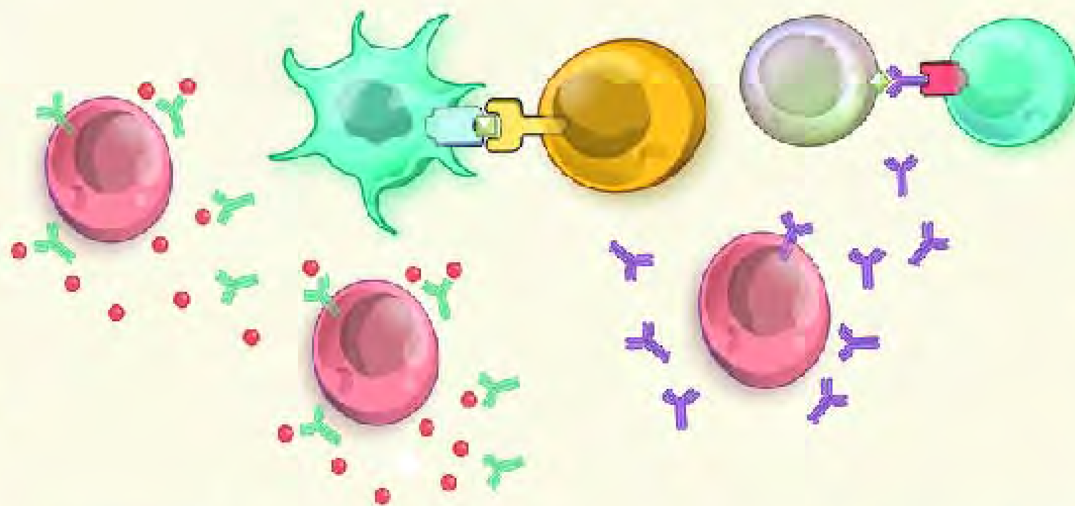
Phil wishes to sincerely thank all medical laboratory scientists who have forwarded their names and CV's to be considered for future short term haematology consultancies in the Pacific. He now wishes to compile a list of biochemistry, microbiology and blood banking medical laboratory scientists with at least 5 - 7 years of experience in their chosen discipline as well as laboratory quality management and who would be interested in future short term projects for the PPTC.

Presented by NZIMLS

Saturday 26th September 2015

The Commodore Hotel

Christchurch



Presentations Welcome!

Contact Lynda Hill

lynda.hill@cdhb.health.nz

SEE YOU IN CHRISTCHURCH!

NZIMLS Presents the

Haematology SIG

17 October 2015

Rydges Hotel Queenstown

Save the date!

Presentations invited

Contact: Leigh-Ann Aitcheson

Email: leigh-ann.aitcheson@sclabs.co.nz

Why not stay the weekend?

There's plenty to do in Queenstown!

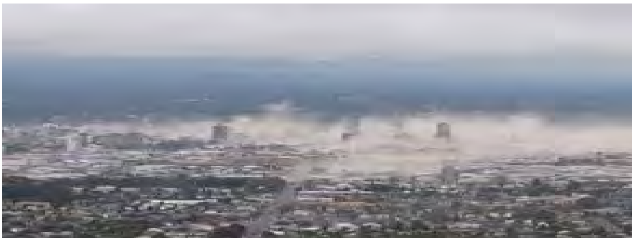
Join us at the

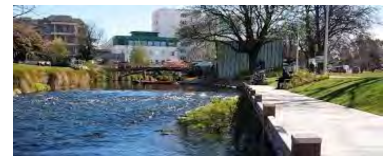
Histology Special Interest Group Seminar

Commodore Hotel
Memorial Ave, CHRISTCHURCH

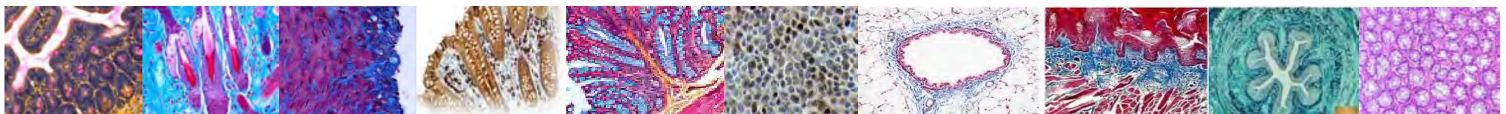
"COME AND BE INFORMED"
7th November 2015

Send your presentations to : Mary Sim
mary.sim@sclabs.co.nz





Come and spend the weekend here in Christchurch. See the rebuilding of our fabulous city, while-away some hours in the spectacular container mall or just enjoy relaxing in a Cafe.



NZIMLS Presents the 2015 **Mortuary Special Interest Group Seminar**

Saturday 7 November

LabPlus Conference Centre
Auckland City Hospital

- Interesting
- Educational
- Thought provoking programme

Presenters welcome

Contact Shane: shanef@adhb.govt.nz

I just woke up and scared the hell out of this mortician!

Journal Questionnaire

Below are 10 questions based on articles in the August 2015 Journal issue. Read the articles carefully as 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 cannot then claim additional CPD points for reading the articles from which the questions were derived.**

The site will remain open until Friday 16th October, 2015. You must get a minimum of eight questions right to obtain five CPD points.

The Editor sets the questions but the CPD Coordinator, Jillian Broadbent, marks the answers. Please direct any queries to her at cpd@nzimls.org.nz.

AUGUST 2015 JOURNAL QUESTIONS

1. How do *Yersinia* spp. appear on *Yersinia* isolation agar?
2. Name a specific limitation of the *Yersinia* isolation agar.
3. What are the most common causative agents of Yersiniosis and how is it transmitted?
4. What were the limitations of the *Yersinia* rapid urea broth study?
5. What are the main features of *Yersinia* spp. bacteria?
6. Which factors affect the prevalence of lower respiratory tract infections?
7. Name three other risk factors for lower respiratory tract infections.
8. Children with lower respiratory tract infections may present with which life-threatening complications.
9. The higher prevalence of lower respiratory tract infections in males in Nigeria has been attributed to which factors.
10. What is the proposed reason why children who were in-patients had a significantly higher prevalence of lower respiratory tract infections than their out-patient counter-part.

April 2015 Journal Questionnaire Answers

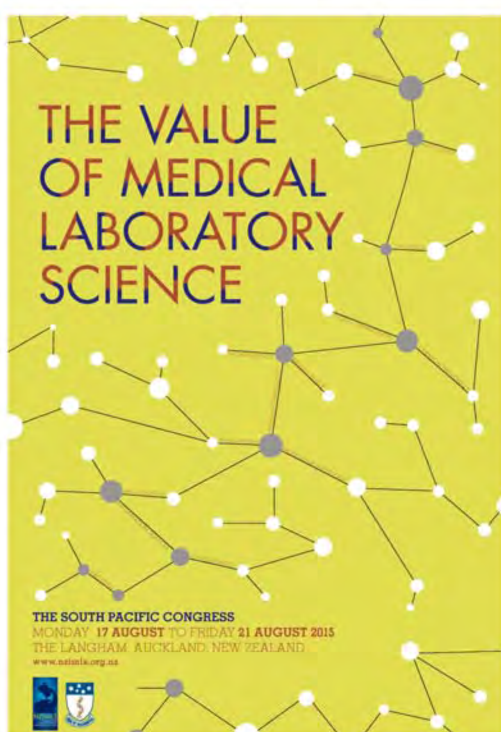
1. Of total laboratory errors, what percentages are attributed to the pre-analytical, analytical and post-analytical phases?
   50-70% for pre-analytical, 5-15% for analytical and 10-30% for post analytical.
2. What three factors are involved in patient preparation before laboratory testing?
   Fasting status, exercise and posture.
3. On how many sites on the Waimakariri river were antibiotic resistant *Escherichia coli* found in both sampling years?
   Two in 2004 and six in 2012; or two in 2004 and four in 2012
4. What is recommended by the EUCAST Clinical Breakpoint Table v3.1 for screening for methicillin resistance in *S. saprophyticus*, and what criteria for further investigation for the presence of *mecA*?
   The use of ampicillin. Zones of <15 mm.
5. What are the main causes of community acquired meningitis in sub-Sahara Africa?
   Cryptococcal meningitis, *Streptococcus pneumonia* and *Neisseria* meningitis.
6. In the *Cryptococcus neoformans* infection article, what signs and symptoms did all studied patients have?
   Fever, headache, photophobia, phonophobia, cough, and altered mental status including personality changes.
7. What is nodular lymphocyte predominant Hodgkin lymphoma characterised by?
   Large neoplastic cells known as popcorn or lymphocyte predominant cells in an inflammatory background.
8. Why is classical Hodgkin lymphoma unique among lymphomas?
   Due to the distinctive malignant multinucleated Hodgkin Reed-Sternberg cells as well as the mononuclear Hodgkin cells.
9. Name three protocols for the rapid direct detection of microbes from positive blood culture vials by MALDI-TOF.
   A centrifuge/washing method, a lysis solution method and a gel-based tube method.
10. List 5 activities apart from the analysis and processing of samples which are part of your competency.
    Maintaining high professional standards both ethically and legally. Demonstrating safe practice. Ability to communicate. Ability to work with colleagues. Recognising socio-cultural values of others

Note: Two possible answers to question 3, both of which have deemed to be correct for CPD points. This arose because in the article abstract it states that states "*multiple antibiotic resistant Escherichia coli was found in two sample sites in 2004 but this had increased to six sample sites in 2012*"; while in the Conclusions it states that "*Multiple antibiotic resistant E. coli were found on samples from only two sites in 2004 but by 2012 found on two further sites,…*"

2015 NZIMLS CALENDAR

Dates maybe subject to change

DATE	SEMINARS	CONTACT
26 September	Immunology SIG Seminar	
17 October	Haematology SIG Seminar, Rydges, Queenstown	Leigh-Ann.Aitcheson@sclabs.co.nz
07 November	Histology SIG Seminar	
07 November	Mortuary SIG Seminar	
DATE	**NZIMLS EXAMINATIONS**	**CONTACT**
07 October	QMLT and QSST Logbooks to be with Executive Office	fran@nzimls.org.nz
04 November	QMLT and QSST Examinations	fran@nzimls.org.nz
DATE	**COUNCIL**	**CONTACT**
16 August	Council Meeting, Auckland	fran@nzimls.org.nz
20 August	Annual General Meeting, Auckland	fran@nzimls.org.nz
November	Council Meeting	fran@nzimls.org.nz
DATE	**EVENTS**	**CONTACT**
17-21 August	South Pacific Congress, Auckland	rossh@adhb.govt.nz fran@nzimls.org.nz
DATE	**MEMBERSHIP INFORMATION**	**CONTACT**
January	Membership and CPD enrolment due for renewal by 28 February	sharon@nzimls.org.nz
January	CPD points for 2015 to be entered before 31 January	cpd@nzimls.org.nz
05 August	Annual Reports and Balance Sheet to be with the membership (14 days prior to AGM)	sharon@nzimls.org.nz
12 August	Ballot papers and proxies to be with the Executive Officer (7 days prior to AGM	fran@nzimls.org.nz
15 September	Material for the November Journal must be with the Editor	rob.siebers@otago.ac.nz



SOUTH PACIFIC CONGRESS 2015

Last chance to register

Registrations are still available for the NZIMLS/AIMS South Pacific Congress

Visit www.nzimls.org.nz to view the Workshop and Scientific programmes

Invited international speakers including Dr Ian Barnes (UK) , Dr Steven Wong (USA), Dr John Old (UK), Prof. Ellen Jo Baron (USA), Prof. Giuseppe Lippi (Italy), Dr Camilla Mattiuzzi (Italy), Dr Laurent Poirel (Switzerland), Dr Stephen Kitchen (UK), Dianne Kitchen (UK), Twyla Rickard (USA), Dr Kevin Carpenter (Australia), Dr Sarah Kidd (Australia), Sarah Baines (Australia), Dr Mark Shephard (Australia)

Also many local and national speakers

Great social programme!

Platinum Sponsor

Delphic AP

Single Piece Workflow

Safeguard your lab with software that manages every stage of laboratory workflow processing and reporting.

Lean Principles

Put Lean Principles to work in the anatomical pathlogy lab with pre-defined workflow; unique identification; on demand printing of cassettes, labels and slides; one case at a time.

Single software provider

The Delphic AP solution is completely integrated, significantly reducing complexity and additional costs associated with third party specimen tracking systems.

Complete instrument flexibility

Choose the instruments that best suit your lab and workflow. Delphic AP easily interfaces to a range of cassette writers, slide writers, label printers and staining machines.

Slide writer interface

Delphic AP is the only software that interfaces to the slide writer, eliminating hand labelling errors and improving patient safety and quality in your lab.

Rapid familiarity, end-to-end

Delphic AP's touch screen user interface is intuitive and easy to learn. From specimen receipt to lab work and reporting.

Delphic AP Single Piece Workflow is available for your lab now. Visit Sysmex at the NZIMLS South Pacific Congress for a demonstration.

www.sysmex.co.nz