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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
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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
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 handed 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 continually 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.

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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.
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).

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

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.

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


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


Also available at: https://www.globalbrigades.org/media/Global_Health_Towards_a_Common_Definition.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 members 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/].

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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 Urea 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 Biomerieux 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 turnaround-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

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 Schimmann 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).

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 Yersinia spp. isolates from the period 01/01/2001 to 31/07/2014 were analysed. This analysis showed that all 978 Yersinia 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 pane 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.

<table>
<thead>
<tr>
<th>Organism</th>
<th>Source/strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yersinia enterocolitica</td>
<td>ERL 95/1291</td>
</tr>
<tr>
<td>Yersinia enterocolitica</td>
<td>ERL 95/2135</td>
</tr>
<tr>
<td>Yersinia intermedia</td>
<td>ATCC 29909</td>
</tr>
<tr>
<td>Yersinia enterocolitica</td>
<td>ATCC 9610</td>
</tr>
<tr>
<td>Yersinia kristensii</td>
<td>ATCC 33638</td>
</tr>
<tr>
<td>Yersinia enterocolitica</td>
<td>Sweden MYO</td>
</tr>
<tr>
<td>Yersinia enterocolitica</td>
<td>Sweden 79B</td>
</tr>
<tr>
<td>Yersinia pseudotuberculosis</td>
<td>ATCC 29833</td>
</tr>
<tr>
<td>Yersinia enterocolitica</td>
<td>NCTC 10460</td>
</tr>
<tr>
<td>Yersinia pseudotuberculosis</td>
<td>NCTC 8580</td>
</tr>
<tr>
<td>Yersinia pseudotuberculosis</td>
<td>NZ Rabbit</td>
</tr>
</tbody>
</table>

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 26°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 20 E 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., Citrobacter spp., and Enterobacter spp.). All isolates confirmed to be Y. enterocolitica or Y. pseudotuberculosis were urea positive following four hours incubation.
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
Providencia spp. | 4 | 0 | 4
Serratia spp. | 5 | 0 | 5
Y. enterocolitica | 3 | 1 | 2
Y. pseudotuberculosis | 1 | 1 | 0

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 YEA 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.

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**REFERENCES**


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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

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 refugee conditions (11).

Children with LRTIs may present life-threatening complications such as massive parapneumonic or pleural effusion, sepsis empyma, 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 (X²) 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

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

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 influenzae*, both with a prevalence of 25.7% each (Table 2).

### Table 2. Distribution of microbial isolates in relation to gender

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

New Zealand Journal of Medical Laboratory Science 2015

54
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.**

<table>
<thead>
<tr>
<th>Organism</th>
<th>In–patient (%)</th>
<th>Out–patient (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Klebsiella pneumonia</em></td>
<td>17 (33.3)</td>
<td>16 (42.1)</td>
<td>33 (37.1)</td>
</tr>
<tr>
<td><em>Proteus vulgaris</em></td>
<td>1 (2.0)</td>
<td>0 (0.0)</td>
<td>1 (1.1)</td>
</tr>
<tr>
<td><em>Proteus mirabilis</em></td>
<td>1 (2.0)</td>
<td>0 (0.0)</td>
<td>1 (1.1)</td>
</tr>
<tr>
<td><em>Providencia</em> spp</td>
<td>1 (2.0)</td>
<td>0 (0.0)</td>
<td>1 (1.1)</td>
</tr>
<tr>
<td><em>Acinetobacter</em> spp</td>
<td>2 (3.9)</td>
<td>0 (0.0)</td>
<td>2 (2.3)</td>
</tr>
<tr>
<td><em>Alcaligenes</em> spp</td>
<td>2 (3.9)</td>
<td>3 (7.9)</td>
<td>5 (5.6)</td>
</tr>
<tr>
<td><em>Haemophilus influenzae</em></td>
<td>6 (11.8)</td>
<td>9 (23.7)</td>
<td>15 (16.9)</td>
</tr>
<tr>
<td><em>Pseudomonas aeruginosa</em></td>
<td>2 (3.9)</td>
<td>0 (0.0)</td>
<td>2 (2.3)</td>
</tr>
<tr>
<td><em>Staphylococcus aureus</em></td>
<td>12 (23.5)</td>
<td>8 (21.1)</td>
<td>20 (22.5)</td>
</tr>
<tr>
<td><em>Streptococcus pneumonia</em></td>
<td>2 (3.9)</td>
<td>0 (0.0)</td>
<td>2 (2.3)</td>
</tr>
<tr>
<td><em>Candida albicans</em></td>
<td>5 (9.8)</td>
<td>2 (5.3)</td>
<td>7 (7.9)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>51 (57.3)</td>
<td>38 (42.7)</td>
<td>89 (100.0)</td>
</tr>
</tbody>
</table>

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.**

<table>
<thead>
<tr>
<th>Organism</th>
<th>AUG 30µg</th>
<th>CAZ 30µg</th>
<th>CRO 30µg</th>
<th>CXM 30µg</th>
<th>OB 5µg</th>
<th>CN 10µg</th>
<th>E 5µg</th>
<th>OFX 5µg</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Klebsiella pneumonia</em> (n=17)</td>
<td>2 (11.8%)</td>
<td>1 (5.9%)</td>
<td>5 (29.4%)</td>
<td>1 (5.9%)</td>
<td>ND</td>
<td>3 (17.7%)</td>
<td>ND</td>
<td>10 (58.8%)</td>
</tr>
<tr>
<td><em>Proteus vulgaris</em> (n=1)</td>
<td>0</td>
<td>0</td>
<td>1 (100%)</td>
<td>0</td>
<td>ND</td>
<td>1 (100%)</td>
<td>ND</td>
<td>1 (100%)</td>
</tr>
<tr>
<td><em>Proteus mirabilis</em> (n=1)</td>
<td>0</td>
<td>1 (100%)</td>
<td>0</td>
<td>1 (100%)</td>
<td>ND</td>
<td>1 (100%)</td>
<td>ND</td>
<td>1 (100%)</td>
</tr>
<tr>
<td><em>Providencia</em> spp. (n=1)</td>
<td>0</td>
<td>1 (100%)</td>
<td>0</td>
<td>1 (100%)</td>
<td>ND</td>
<td>1 (100%)</td>
<td>ND</td>
<td>1 (100%)</td>
</tr>
<tr>
<td><em>Acinetobacter</em> spp. (n=2)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>ND</td>
<td>2 (100%)</td>
<td>ND</td>
<td>2 (100%)</td>
</tr>
<tr>
<td><em>Alcaligenes</em> spp. (n=2)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 (50.0%)</td>
<td>ND</td>
<td>2 (100%)</td>
<td>ND</td>
<td>2 (100%)</td>
</tr>
<tr>
<td><em>Haemophilus influenzae</em> (n=6)</td>
<td>3 (50.0%)</td>
<td>1 (16.7%)</td>
<td>4 (66.7%)</td>
<td>1 (16.7%)</td>
<td>ND</td>
<td>NA</td>
<td>ND</td>
<td>5 (83.3%)</td>
</tr>
<tr>
<td><em>Pseudomonas aeruginosa</em> (n=2)</td>
<td>NA</td>
<td>0</td>
<td>0</td>
<td>NA</td>
<td>ND</td>
<td>0</td>
<td>ND</td>
<td>2 (100%)</td>
</tr>
<tr>
<td><em>Staphylococcus aureus</em> (n=12)</td>
<td>4 (33.3%)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>ND</td>
<td>7 (58.3%)</td>
<td>3 (25.00)</td>
<td>9 (95.0%)</td>
</tr>
<tr>
<td><em>Streptococcus pneumonia</em> (n=2)</td>
<td>1 (50.0%)</td>
<td>1 (50.0%)</td>
<td>1 (50.0%)</td>
<td>1 (50.0%)</td>
<td>ND</td>
<td>1 (50.0%)</td>
<td>1 (50.0%)</td>
<td>2 (10.0%)</td>
</tr>
</tbody>
</table>

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

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

**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 Egbaagbe and Mordi (19), but lower than 59.4% reported by Ozylimizer 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 Ozylimizer *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 Egbaagbe 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 < 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.
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REFERENCES


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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, Microbiologist1
John Aitken, NZCS COP, Principle Scientist2

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

REFERENCE


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 website at www.nzimls.org.nz

Current Fellows

Jenny Bennett
Mark Bevan
Jillian Broadbent
Alisa 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

New Zealand Journal of Medical Laboratory Science 2015
60
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

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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 Ceryn 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

Ceryn 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 Charlotte Passe (NZBS Christchurch) - Vincristine Platelets
- The Pharmaco Award for best poster went to Kim McKinley (SCL Invercargill) - 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
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 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.

Max Reed
Seminar Convenor

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

Jill Broadbent giving us a run down of proposed changes to the NZIMLS CPD programme and a summary of the day.

Ashleigh Cotton receiving the BSIG Best Speaker prize from Jillian Broadbent

New Zealand Journal of Medical Laboratory Science 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 *Staphylococcus 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 gastrochisis with a probiotic twist.
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.

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.
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 PPTC Board 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 Vaiala 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.
IMMUNOLOGY
SPECIAL INTEREST GROUP
2015

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!
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 inpatients had a significantly higher prevalence of lower respiratory tract infections than their out-patient counterpart.

**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 meningitidis*.
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*

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

*Last chance to register*

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

Visit [www.nzimls.org.nz](http://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

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