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Submit all material electronically to the Editor at journaleditor1@nzimls.org.nz. Comprehensive instructions can be found in the NZ Journal of Med Lab Science 2000, vol. 54, issue 3, pages 108 to 110 or on the NZIMLS web site (www.nzimls.org.nz). When submitting provide a statement that the work is original, has not previously been published or is under consideration elsewhere, and that all named authors justify authorship by either contributing to the planning, execution, analysis and critical writing of the study, and all approve submission of the final version.

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New Zealand Journal of
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In this issue

In this issue is a review article on laboratory methods for the diagnosis of malaria infection. It originally appeared in the *Australian Journal of Medical Science* and is reprinted here with permission of AIMS, as copyright holder. In this article the authors detail the methods for the laboratory diagnosis of malaria infection. They discuss methods for direct microscopic examination, as well as molecular, serological, and rapid methods.

In an Editorial, the Editors of the Journal present the new Editorial Board team, announce changes to the journal-based questionnaire, and announce a new Journal prize for the best case study published in the Journal during the calendar year.

In a special feature Fellowship of the Institute is promoted. Routes towards Fellowship and exemptions for Part 1 are described. Three current Fellows state why they sat for Fellowship and what it has meant for them personally and professionally.

Changes have been made to the CPD program. These are described in this issue by our CPD co-coordinator, Gillian Broadbent.

The journal-based questionnaire continues to be a very popular route for obtaining CPD points. During 2006, about 450 members answered the questionnaire each issue to obtain 5 CPD points. This is about one quarter of the membership and if they answered all 3 questionnaires in 2006 correctly, they would have obtained 15 out of the 40 additional CPD points required for the year. As from this issue the journal-based questionnaire will be a bit tougher in that members will have to supply answers to the questions, instead of a true/false response. Read this issue, supply your answers through the NZIMLS web site, and don't forget to supply your correct email address for us to notify you of your CPD points entitlement.

Med-Bio Journal Award

med·bio

Med-Bio offers an award for the best article in each issue of the New Zealand Journal of Medical Laboratory Science. All financial members of the NZIMLS are eligible. The article can be an Original, Review or Technical Article, a Case Study or a Scientific Letter. Excluded are Editorials, Reports, or Fellowship Treatises. No application is necessary. The Editor and Deputy Editor will decide which article in each issue is deemed worthy of the award. If in their opinion no article is worthy, then no award will be made. Their decision is final and no correspondence will be entered into.

The winner of the Med-Bio Journal Prize from the November 2006 issue was Barbara Hoy, Medlab Hamilton for her article "The hidden diagnosis – a case study". *N Z J Med Lab Sci 2006; 60: 97-8.*

Editorial

A new Editorial Board, a new journal prize and a revamped journal questionnaire

Rob Siebers, FNZIMLS, Editor Ann Thornton, FNZIMLS, Deputy Editor Wellington School of Medicine & Health Sciences

The Editor and Deputy Editor rely on Editorial Board members to suggest referees for submitted articles, to encourage colleagues to publish and to offer advice to potential contributors. The Editorial Board for the preceding three years was made up of Fellows of the NZIMLS, except for the joint Editors of the Australian Journal of Medical Science, a reciprocal arrangement with our Journal. When they joined, the New Zealand Editorial Board members were told that it would be for a period of three years, after which a new Editorial Board would be appointed, although some might be kept on because of subject speciality requirements. The Editorial Board members for the last three years have given the Journal sterling service and we thank them for this.

As from this issue the Journal has a new Editorial Board for the next three years. We have departed from the previous policy of appointing only Fellows of the Institute and have gone for experience in their speciality and with a publications record. We have retained one previous Editorial Board member, namely Gloria Evans from Canterbury Health Laboratories. Gloria is a Fellow of the Institute and has a Master's degree in medical laboratory science. Her speciality is microbiology and she has published a number of peerreviewed articles.

The other new Editorial Board members from New Zealand are Chris Kendrick from Massey University, Kevin Taylor from Canterbury Health Laboratories, and Mike Legge from Otago University. Their specialities are transfusion medicine, haematology and chemistry respectively. Additionally, they have published in peerreviewed journals and Chris Kendrick and Mike Legge are Senior Lecturer and Associate Professor in medical laboratory science respectively. Mike Legge also is a Fellow of the Institute. We look forward to working with the new Editorial Board in maintaining the continuous 60 year-long publication record of the Journal. However, as usual, we need input from you as members with submission of articles relating to medical laboratory science. We also thank the previous Editorial Board members, Jenny Bennett, Graeme Paltridge, Jackie Wright and Vanessa Thomson for their help and advice over the last three years.

Last year the Journal celebrated 60 years of continuous publication. After the British Journal of Biomedical Science, our Journal is the 2 nd oldest peer-reviewed journal in the speciality of medical laboratory science. To mark the 60 year anniversary Council approved a special prize for the best case study accepted and published in the Journal in 2006. We received three submissions and the winner was Barbara Hoy from Medlab Hamilton for her article "The hidden diagnosis - a case study" (1). Council now has generously agreed to sponsor a new annual prize for the Journal. This will be for the best case study published in the Journal during the whole year and is worth $200. We know that many case studies are presented at SIG meetings each year but never make it to the Journal. So, submit it to the Journal and thus present it to a wider audience than just at the SIG meeting. You are then eligible to win this annual prize as well as the MedBio prize for the best article in each issue of the Journal. Also, you will earn valuable CPD points for your published paper. Many of you will say, but I don't know where to start, I have no experience in writing articles. The Editor, Deputy Editor and members of the Editorial Board are user friendly and will help you and give advice. Contact them!

The Joumal-based questionnaire was introduced in the beginning of 2006 to givemembers another avenue for obtaining CPD points. The questionnaires have consisted of 10 true or false questions based on articles published in each issue of the Journal and if members gets at least 7 questions right, they earn 5 CPD points. Thus, by doing the Joumalbased questionnaire for each issue, members potentially can earn 15 CPD points of the 40 other required from non-compulsory sections in one year. The Journal-based questionnaires have been extremely popular with between 450 and 500 members submitting their answers from each issue of the Journal, about one quarter of the membership As happens with new ventures, gremlins can occur and we had a few of those at the start of the program. These have now mostly been ironed out and in the majority of cases there were no significant problems with the last questionnaire. However, a small number of members did not receive notification of their CPD points from this activity. This was because they did not supply an email address or an incorrect email address. Some members even submitted answers without any identification whatsoever, no names, membership numbers or email addresses. It takes a lot of work at the Editorial Office marking all the submissions and notifying the members. Unfortunately, we are not psychic, thus please ensure that, before hitting the submit button, you have checked that you have supplied all the relevant information. Also, please do not send rude or terse emails when you have not heard from the Editor. A friendly email will get a prompt response. The job is entirely voluntary and most of it is done in spare time.

There has been some fine tuning to the CPD program and also to the Journal-based questionnaire. In order for it to reflect its worth of 5 CPD points, the Journal-based questionnaire will be a bit tougher. Instead of 10 false or true questions, most of them will require you to supply answers to the questions. Thus, you will have to read the articles very carefully in order to glean the correct answer. Most of the answers will only be apparent from reading the whole article, not just the abstract. Again, you will need to get at least 7 questions right to earn 5 CPD points. We hope that you will continue to support the Journalbased questionnaire (and also the Journal by submitting articles).

Not only does the Journal publish Original and Review articles and Case Studies, but also Scientific Letters. These are generally about 800-1000 words with no subheadings or abstract, one Table or Figure only, and no more than 5 references (2). These scientific letters are a good venue for describing technical aspects and are peerreviewed and, if accepted for publication, will give NZIMLS members the same number of CPD points as for Original and Review Articles and Case Studies.

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Laboratory diagnosis of malaria infection – A short review of methods

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Abstract
Malaria is one of the most important tropical infectious diseases. The incidence of malaria worldwide is estimated to be 300–500 million clinical cases each year with a mortality of between one and three million people worldwide annually. The accurate and timely diagnosis of malaria infection is essential if severe complications and mortality are to be reduced by early specific antimalarial treatment. This review details the methods for the laboratory diagnosis of malaria infection.

Keywords: malaria, diagnosis, microscopy, rapid

This article has previously been published in the Australian Journal of Medical Science 2006; 27 (1): 11-15 and is reprinted here with kind permission of AIMS and the authors.

N Z J Med Lab Sci 2007; 61 (1): 4-7

Introduction
Malaria is the most important parasitic infection of man, and is associated with a huge burden of morbidity and mortality in many parts of the tropical world. Mortality rates of 10–30% have been reported among children referred to hospitals with severe malaria, although these rates are even higher in rural and remote areas where diagnosis and treatment are not readily available (1). The accurate diagnosis of malaria infection is important in order to reduce severe complications and mortality. Malaria infection cannot be diagnosed clinically as the presenting clinical signs and symptoms mimic other tropical infections and therefore must be confirmed by laboratory diagnosis. This review focuses on the different laboratory tools available for confirmation of malaria infection. It should be noted, however, that although in non-immune individuals the presence of malaria parasites in the blood is sufficient to make a diagnosis of clinical malaria infection, in immune individuals living in high transmission areas there are high rates of asymptomatic parasitaemia; in this context alternative causes of the presenting illness need to be considered as the parasitaemia may be incidental.

The simple, direct microscopic observation of blood specimens to observe the malaria parasite is still the gold standard for malaria diagnosis. Microscopic diagnosis of malaria is performed by staining thick and thin blood films on a glass slide to visualize the malaria parasite (2). Briefly, the patient's finger is cleaned with alcohol, allowed to dry and then the side of the fingertip is pricked with a sharp sterile lancet or needle and two drops of blood are placed on a glass slide. To prepare a thick blood film, a blood spot is stirred in a circular motion with the corner of the slide, taking care not make the preparation too thick, and allowed to dry without fixative. As they are unfixed the red cells lyse when a water based stain is applied. A thin blood film is prepared by immediately placing the smooth edge of a spreader slide in the drop of blood, adjusting the angle between slide and spreader to 45°, and then smearing the blood with a swift and steady sweep along the surface. The film is then allowed to air dry and is fixed with methanol. Because a larger volume of blood is examined the thick film is more sensitive than the thin film (down to around 40 parasites per µL or 1 parasite per 200 white blood cells) although it requires more expertise to read (3).

Alternatively, an intradermal smear may be prepared by making multiple intradermal punctures with a 25 gauge needle on the surface of the upper forearm. The punctures should not ooze blood, but serosanguinous fluid; this is expressed on the glass by squeezing and smeared and allowed to air dry and fixed with methanol. This smear may show pigment-containing leucocytes and demonstrate more mature forms of Plasmodium falciparum than peripheral blood (4). There are many methods described for staining blood films for malaria diagnosis, including Giemsa stain (20-30 min), Leishman stain (45 min), and the rapid Field stain method (10 sec) (5). On light microscopic examination of the blood film the number, species, and morphological stage of the parasites can be reported (Figure 1). Sometimes parasites cannot be found in peripheral blood smear from patients with malaria, but malaria pigment may be seen in circulating phagocytic leucocytes. This is a pathognomonic sign of recent malaria infection, and in the case of a treated or partially treated infection may be seen in the absence of parasites. The presence of leucocyte pigment is both qualitatively and quantitatively associated with parasite load, and is therefore indicative of a clinically significant infection, particularly in low transmission areas (6). Parasites may also be found in bone marrow aspirate when absent

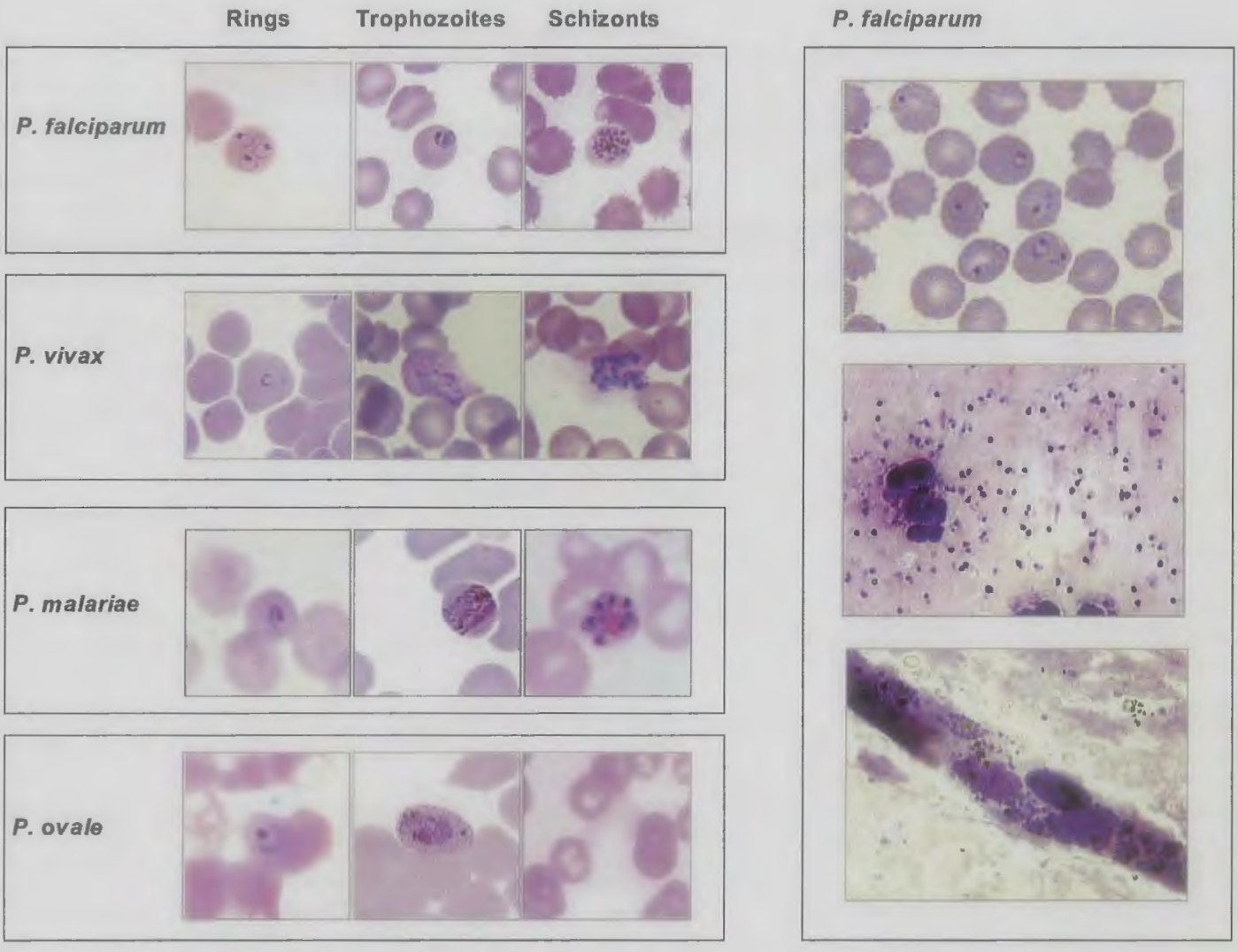

Figure 1.
Left: photomicrographs of stage development (ring, trophozoite and schizont) of P. falciparum, P. vivax, P. malariae and P. ovale from thin blood smears.

Right: photomicrographs of P. falciparum from thin blood smear (top), thick blood smear (middle) and brain smear (bottom)

on thin smears of the peripheral blood (7).

In addition to providing a diagnosis of malaria the blood smear can also provide useful prognostic information; the parasite count, number of circulating pigment-containing phagocytes and the presence of late asexual stages of the parasite are all positively correlated with a fatal outcome (4,6).

Molecular methods

The polymerase chain reaction (PCR) allows the specific amplification of a selected region of the malarial genome (8). This technique is highly specific and sensitive (1-5 parasite/mL of blood) and permits genotyping (9,10). Furthermore, PCR using single nucleotide polymorphism (SNP) analysis allows the detection of drug resistant parasites and mixed infections (11,12) However, PCR is expensive and requires a sophisticated laboratory manned with well-trained staff.

Rapid methods

Detection in patient samples of malaria parasite antigens such as histidine rich protein II (HRP-II) or plasmodium lactate dehydrogenase (pLDH) can be performed by rapid, point-of-care tests based on immunochromatographic methods.

There are many commercially-available rapid tests (see Table 1 for summary) including Para Sight F (13,14) and Paracheck, Binax NOW P.f./ P.v. and OptiMAL (Flow Inc., USA) (15,16).

Excellent reviews of the diagnostic performance of rapid methods for the diagnosis of malaria are presented elsewhere (17,18). The advantages of these tests are that they are quick to perform and have high sensitivity (19). The disadvantages of the rapid format are the relatively high cost, the inability of some tests to distinguish malaria species, and manufacturing variation (18). Those based on HRP II detection may give positive results in the convalescent phase of the illness due to the persistence of HRP II in the blood after parasite clearance (20).

Quantitative buffy coat method

Quantitative buffy coat (QBC; Becton Dickinson, USA) is a method for identifying the malarial parasite in the peripheral blood. It involves staining of the centrifuged and compressed red cell layer with acridine orange and its examination under an ultraviolet (UV) light source (21). Briefly, blood is collected (from a finger prick) in an haematocrit tube containing acridine orange and anticoagulant. The haematocrit tube is centrifuged at 12,000 g for 5 min and immediately examined using a microscope equipped with a UV light source.

The parasite nuclei fluoresce bright green, and the cytoplasm appears yellow-orange. This test has sensitivity similar to the conventional thick blood film microscopic methods. It is reliable and user-friendly and should be used together with thick blood film microscopic screening. However, QBC requires specialised instrumentation, has a higher high cost than microscopic methods and is poor at species determination and parasite quantification.

Serological methods

Serological tests for the diagnosis of malaria infection rely on the detection of antibodies against asexual blood stages of the malaria parasite. The first serological test used for the detection of malaria antibodies was the immunofluorescence assay, often abbreviated to IFA (22). This method uses specific antigen or crude antigen prepared on a slide, coated and kept at –30 oC until use, and quantifies both IgG and IgM antibodies in patient serum samples. Titres >1:20 are classified as positive, and those below 1:20 classified as of doubtful significance. High titres (>1:200) represent strong evidence of a recent infection. Serological tests provide retrospective confirmation of malaria infection or a history of infection, and are useful in epidemiology surveys and the screening of blood collected for blood banks. Nevertheless, the utility of serological methods for the diagnosis of acute malaria infection is limited owing to the delay in antibodies development, lack of species confirmation and the need for a fluorescence (UV) microscope.

Other malaria diagnostic methods include the cultivation of live malaria parasites (23,24), and post-mortem diagnosis made by the detection of malaria parasites or pigment in leucocytes in tissue autopsy, brain smears (25), spleen imprint and bone narrow smear.

Conclusions

The diagnosis of malaria by conventional microscopy remains the gold standard for malaria diagnosis, although it requires highly-skilled personnel and may have a lower sensitivity than the more recent molecular techniques. It is, however, inexpensive and reliable. Rapid assays are expensive but are quick and convenient. Molecular techniques are better suited to research laboratories to check for development of drug resistance and relapse, and can be useful for species identification when counts are very low or samples have undergone some deterioration. Serology is best used as an epidemiological tool and is not suitable for the acute diagnosis of malaria. The choice of the most appropriate test for malarial diagnosis must be determined by the level of malaria endemicity (including species), the urgency of diagnosis, and availability of personnel and financial resources.

Acknowledgement

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Table 1. Description of rapid assays for the diagnosis of malaria infection.

Assay	Manufacturer	Antigen	Species specificity
Para Sight F	Becton-Dickenson, USA	HRP-II*	P. falciparum
Paracheck	Orchid Biochemicals, India	HRP-II	P. falciparum
NOW P.f/P.v	Binax Inc, USA	HRP-II	P. falciparum, P. vivax, P. malariae, P. ovale
OptiMAL	Flow Inc, USA	pLDH†	P. falciparum, P. vivax, P. malariae, P. ovale

* Histidine Rich Protein II
† Lactate Dehydrogenase

CPD recertification programme update 2007

The Medical Laboratory Science Board (MLSB) requires all recertification programmes (e.g. the NZIMLS CPD programme) to be reviewed every three years. This is part of the requirements of the Health Practitioners Competency Assurance Bill (2003).

The NZIMLS CPD Programme was approved in 2004 and so was due for review in 2007. This review has taken place and changes have been approved by the MLSB. The changes that have been made are summarized below and a full updated CPD programme is available via the NZIMLS website (www.nzimls.org.nz). The NZIMLS CPD recertification booklet will not be published until 2008.

Logging of points and access to records remains unchanged.

For all enquires please contact the CPD co-ordinator, Jillian Broadbent. email: cpd@nzimls.org.nz

CPD points categories 2007

1. Annual competency review

Compulsory section

Laboratory competence within the designated scope of practice and specialty area. Peer review of competence conducted to meet the accreditation standard as documented in ISO 15189 (or equivalent for individuals who are not employed in a Medical Laboratory) and the competencies and standards documented in the "Code of Competencies and Standards" of the Medical Laboratory Science Board.

Self declaration of competence is not acceptable.

Points allocated in this category recognize competence to practice within an individual's designated scope of practice and specialty area and recognizes the less formal professional development that accompanies both part-time and full-time laboratory employment.

Claim 60 points.

The CPD audit process will require you to provide a copy of an Annual Competency Review Document (a pro forma of a suitable document is available on the NZIMLS website www.nzimls.org.nz).

2. NZIMLS Classroom

Submission of answers to NZIMLS Classroom on-line generated quizzes.

Claim 3 points for 70% pass
4 points for 80% pass
5 points for 90% pass

The CPD audit process will require you to provide a printout of your quiz certificate.

Maximum 3 classroom sessions per discipline per year.

Setting of questions for classroom programmes

Claim 5 points / 10 questions accepted for the classroom.

The CPD audit process will require you to provide a copy of the acceptance letter you receive for your questions.

3. Laboratory new method development

Development or assessment of new laboratory methodologies to be used as part of the laboratory's test menu. Suitable claims in this category may include the formal evaluation of a new laboratory test prior to its introduction in the laboratory, or be part of the evaluation of an existing test method.

Claim 10 points / method.

The CPD audit process will require you to provide relevant details, including techniques, dates, equipment and a full method critique with statistics.

4. IANZ laboratory audit

Internal audit

Formalised full in-house annual audit complying with ISO 15189 as applied to equipment, supplies, SOP documentation, quality control procedures and staff performance.

Claim 1 point / hour (maximum 8/day).

The CPD audit process will require you to provide a copy of the front page of the audit.

External audit

Participation as a technical expert of a review team acting on behalf of IANZ or other agency. Included in this section is allowance for the provision or receipt of training for audit purposes.

Claim 1 point / hour (maximum 8/day)

The CPD audit process will require you to provide a copy of the acknowledgment letter received from IANZ.

5. Presentation – oral

Oral presentations at Scientific Meetings or In-House Seminars

	Internal	External
< 10 minutes	2	5
10 – 30 minutes	5	10
> 30 minutes	10	20

The CPD audit process will require you to provide meeting details and a copy of the abstract from the meeting's programme.

6. Scientific meeting/workshop attendance

16 points per day or pro rata for part day claims.

Included here are NZIMLS and AIMS Special Interest Group meetings and Annual Scientific Meetings from other organizations relevant to Medical Laboratory Science.

Also included are the many company User Group meetings that are held annually. These are hosted by laboratory supply companies and are an excellent source of continuing education for MLS practitioners. Most of these are evaluated by the NZIMLS as they occur, with CPD endorsed certificates of attendance usually issued by the companies.

External training days run independently from laboratory of a scientists normal day to day work (this does not include days to maintain competency for shift workers, part-time staff or casuals) and visits to laboratories (or elsewhere) for the purpose of updating, learning new scientific techniques, or for the training in the use of instrumentation are also included in this category.

If you attend a meeting or workshop that has not been evaluated for CPD points, but you feel it has been beneficial, submit a claim together with the meeting's details and a contact for a member of the organization that hosted the meeting.

Claim 16 points per day or pro rata for part day claims.

The CPD audit process will require you to provide evidence of attendance, including certificates, programmes and relevant notes.

7. Employment related study – post graduate study MLS related

Enrolment and successful completion of an NZIMLS Fellowship or post-graduate diploma/Master in MLS. Other post-graduate courses will be approved on a case by case basis by the CPD coordinator.

Claim	20 points / part in Fellowship.
Claim	20 points / paper at 500 level or above.

The CPD audit process will require you to provide notice of successful completion of the programme of study from the University or organization.

8. Scientific paper publication

Publication of a scientific or profession related article either as a primary or co-author in referred journals.

Primary Author	claim 20 points
Co Author	claim 5 points

(Referees for scientific papers may claim 5 points under this section).

The CPD audit process will require you to provide a copy of the publication, and any other relevant information.

9. Presentations - written

Posters (which must have been presented at a scientific meeting).

Primary author	claim 10 points.
Co author	claim 5 points.

Newsletters or educational monographs (must be 100% scientific and referenced).

Claim 10 points.

The CPD audit process will require you to provide meeting details and a copy of the abstract from the meeting's programme, or a copy of the newsletter.

10. Structured reading

Submission of a review article on a set topic: Reviews must be prepared and submitted according to the "Instructions for Authors" in the NZIMLS Journal. All reviews will be graded and returned with those receiving a "pass" grade eligible as a claim for CPD points.

Claim 20 points /"passed" submission.

The CPD audit process will require you to provide a graded copy of the submitted review article or a copy of the letter advising you of your result.

11. Self-assessment programmes/web based and on-line learning programmes

Claim 2 points / programme successfully completed.

The CPD audit process will require you to provide proof of completion of programme or a 150 word synopsis of the website programme is required for audit purposes.

12. Journal articles

Claim 2 points / article from a peer reviewed journal.

The CPD audit process will require you to provide a 150-word synopsis for each article claimed together with a printed copy of the first page of the original article or other evidence of reading.

13. Book review

Publication of a book review on MLS related subjects. Unpublished reviews do not qualify.

Claim 10 points / review.

The CPD audit process will require you to provide a copy of the publication, and any other information relevant to the publication(s).

14. Seminar/lecture/case study attendance (in-house)

Claim 2 points / hour attendance (minimum claim 30 minutes)

The CPD audit process will require you to provide a written summary or PowerPoint of the presentation together with other relevant details.

If a claim is made for attendance at a web-based seminar please provide a written paragraph about the seminar together with details of the topic, presenter, www address, dates and times.

15. NZIMLS journal-based questionnaire

Claim 5 points / successful submission.

The CPD audit process will require you to provide a copy of your questionnaire submission and the email from the editor acknowledging successful completion.

Formal preparation of questions for a journal questionnaire i.e. HSIG questions.

Claim 5 points.

The CPD audit process will require you to provide a copy of the questionnaire and relevant journal publication details.

16. Examiner, moderator, etc

Appointment as either examiner or moderator for Medical Laboratory Science (or related) examinations conducted on behalf of the NZIMLS, NZ Universities or Polytechnics and including QMLT, QST, QPT and Fellowship treatise assessment.

Examiners	15 points
Moderators	15 points

Also included:

Structured reading assessors	10 points / topic
University Course Moderators	20 points / programme

The CPD audit process will require you to provide evidence of papers/

Activity	Points available
Employment related	
1.Annual training document review (compulsory)	60/yr
2. NZIMLS classroom	3 for 70% pass 4 for 80% pass 5 for 90% pass (maximum 3 classroom sessions per discipline per year) 5 /10 questions accepted for classroom
3. Laboratory new method development	10/method
4. IANZ laboratory audit and audit training	Internal 8/day* External 8/day*
Continuing Education	
5.Presentation – oral	Internal / External <10 min 2 / 5 10-30 min 5 / 10 >30min 10 / 2
6.Scientific meeting/workshop, NZIMLS special interest group, user group meeting etc.	16/day*
7. Employment related study (e.g. Post graduate MLS, NZIMLS fellowship or other relevant programmes)	20/part fellowship 20/paper at 500 level or above
8. Scientific paper publication	10/article primary author 5/article co author 5/article referee
9. Presentation - written	10/poster primary author 5/poster co author 10/article newsletter or educational monograph
10. Structured reading	20/'passed' submission
11. Self assessment programmes, web based learning and online programmes	2/programme successfully completed
12. Journal articles	2/article
13. Book review (published)	10/review
14. Case study/seminar/in house lecture	2/hr attendance
15. NZIMLS journal based questionnaire	5/successful submission 5/formal preparation for a journal questionnaire
Professional Affairs	
16. Examiner/moderator/structured reading assessor/university course moderator	15/examiner/yr 15/moderator/yr 10/topic SRA/yr 20/programme for university course moderator
17. Professional service	2/activity (max. 10/yr)
18. Other - specify	2/activity (max. 10/yr) Or on application

* pro rata for part day, part hour claims

programmes assessed or a copy of the examination paper.

17. Service to the profession

The following activities are examples of service to the profession:

- Administration of the profession's affairs through the NZIMLS Council – including co-opts to Council sub-committees
- Appointees to the MLSB and MLSB sub-committee co-opts
- Conveners of NZIMLS Special Interest Groups
- Members of NZIMLS Annual Scientific Meeting organizing committees
- NZIMLS representatives on Boards of Study (or equivalent) of tertiary teaching institutions
- Preparation of SIG workshops
- Scientific advisors on panels or committees (IANZ, RCPA etc)
- Formal lectures to QMLT/QSST/QPT

Claim 2 points / activity (to be capped at 10 points / annum).

The CPD audit process will require you to provide relevant details to support the claims.

18. Other

- First aid courses.
- Health and safety courses.
- Train the trainer.
- Management of stress.

Handling dangerous goods or radioactive goods.

These are all important but not science related.

Claim 2 points / activity, with a maximum of 10 points per year in this section.

The CPD audit process will require you to provide proof of attendance and relevant notes.

Claims not covered in other sections of this schedule also fit into this category.

The CPD audit process will require you to provide sufficient information to assess the merits of the claim. This will require the provision of a contact for verification purposes.

Fellowship of the NZIMLS

Fellowship of the New Zealand Institute of Medical Laboratory Science (NZIMLS) is the highest professional qualification offered by the NZIMLS and successful candidates have the right to use the letters FNZIMLS as long as they remain a financial member of the NZIMLS. Fellowship may be gained by:

- Examination in two parts:
  Part 1 consisting of two written papers each of three hours duration and;
  Part 2 consisting of a dissertation of 3,000 to 5,000 words.
- Thesis: Must be the original work of the candidate, not exceed 20,000 words, and be based on the style of Master of Science by thesis requirements of Universities of New Zealand.
- Publications:
  A minimum of seven peer reviewed publications in international or discipline acknowledged biomedical journals, of which the candidate must be the 1st author of at least four. The publications must follow a theme and a review of the submitted articles of 3,000 to 5,000 words must also be submitted.

Copyright of the dissertation, thesis or review will belong to the NZIMLS and may be published in the New Zealand Journal of Medical Laboratory Science at the discretion of the Editor.

Candidates applying for Fellowship by examination are exempt from the Part 1 examination if they are holders of an approved post graduate qualification or a higher professional qualification. For a post graduate qualification the course of study must meet the minimum requirement of the equivalent of one year's full time study (for example the University of Otago's and Massey University's Post Graduate Diploma in Medical Laboratory Science). Acceptance of other post graduate qualifications (MSc, MBA, PhD) that have a significant medical laboratory science component will be considered by the Fellowship Committee. Higher professional qualifications approved for exemption from the Part 1 examination are:

- Fellowship of the Australian Institute of Medical Science (AIMS)
- Fellowship of the Institute of Biomedical Science (IBMS)
- Fellowship of the Australian Association of Clinical Biochemists (AACB)

The Fellowship Committee
Will consider other higher professional qualifications (must have a significant medical laboratory science component). The Fellowship Committee consists of three members appointed by Council on an annual basis with at least two of the appointees being Fellows of the NZIMLS. Current members are listed at the end.

What benefits are there for Institute members to sit for Fellowship? At present Fellowship is not officially recognised in industry agreements and some members feel that it is better professionally to obtain post graduate qualifications. However, Fellowship can also be used to obtain some exemptions from post graduate studies. For instance, Massey University will allow Fellowship holders to enrol in a 50 point Postgraduate Certificate in Science, and if achieving a B grade point average or better, the candidate may convert to the Masters of Medical Laboratory Science. Also, there have been individual instances of Fellowship holders progressing to post graduate qualifications at other New Zealand and overseas universities or professional organisations.

Below, three current Fellows of the Institute explain why they sat for Fellowship and what it has meant for them professionally and personally.

Vanessa Thomson, FNZIMLS
I started my medical laboratory science training in 1988 at Waikato Hospital and graduated in 1991 in haematology. After two years I headed to Australia for three years of Bible College training returning in the holiday's to Waikato hospital to work in the haematology department. While in Australia I worked part time at Launceston Hospital laboratory. I returned to Waikato Hospital on a temporary contract and after some months an opportunity arose to work at Pathlab Waikato and experience working in a private laboratory. During this year I passed my Specialist haematology exams. In 1998 my call up came and I headed for Nepal to work as laboratory manager on a Tuberculosis / Leprosy project and as a consultant to the government hospital's setting up a nation wide quality assurance program. A great basic training and some good kiwi ingenuity helped working in some of the most remote parts of Nepal. Travelling throughout the country it soon became apparent that resources in the laboratories were sparse. Books were no where to be seen. There were no 'Barbara Bain or Gillian Rozenburg' books to refer to haematology morphology, pictures of parasites or standard operating procedures.

Being a young ambitious scientist in the early days, my desire was always to study as far as I could within the profession. A Fellowship seemed 'out of my league' but I still held the dream alive. Once the Fellowship rules changed it seemed achievable so while in Nepal my dissertation was written on 'An evaluation and comparison between blood film microscopy services in government hospital laboratories in the Mid-Western Region of Nepal and the Waikato Region in New Zealand'. My desire to share resources between resource poor and rich countries, and a flow on from the Fellowship resulted in writing a book on blood cell morphology specifically for the laboratory staff in Nepal to be able to refer to at the bench everyday. This book was subsequently distributed throughout Nepal, used for training laboratory technicians and in 2005 translated into Chinese for distribution throughout Tibet. Sharing of resources between countries was also seen for a number of years by the Waikato QA program sending the weekly blood film to the National Public Laboratory in Kathmandu and more recently to Tibet.

Personally, gaining my Fellowship was a career pinnacle. Since that time and returning to New Zealand in 2000 I have worked into my current role of Charge of Haematology at Hawkes Bay Hospital, worked on short assignments in Tibet and with the World Health Organisation in Nepal, organised haematology seminars, been scientific convenor for the annual conference, moderator for the QTA exam, Honorary Associate for Massey University training students, IANZ auditor and Editorial Board member of the NZIMLS journal. Professionally, I had hoped the Fellowship qualification would be more recognized in New Zealand and internationally. However I still highly recommend the Fellowship to my Massey students, particularly the examination option. I believe it adds a very necessary knowledge depth particularly for graduates seeking career progression in the future and maintaining esteem of the profession.

Jenny Bennett, FNZIMLS

I trained to be a medical laboratory scientist at Wellington Hospital, via the old system: three years at Wellington Polytechnic to obtain NZCS (Paramedical) and two years specialisation, in my case an O and A level in microbiology. I then worked for the next 5 years in serology and routine microbiology, leaving as a grade one staff scientist when I had my first child.

While my children were small, I retrained in immunohaematology and worked two nights a week on the four to midnight shifts in the Crossmatch Laboratory. This period can be summed up by the phrase "I need the blood...NOW" which I heard quite frequently! During this time I decided to study extramurally for a Post Graduate Diploma in Medical Laboratory Science through Massey University. This consisted of six papers, one of which was DNA Technology, which I found incredibly useful later on. PCR was only a gleam in Kary Mullis's eye when I did my initial training!

When my first child started school I ceased being a 'lady of the night' as the cross match night workers were called, and started two day jobs. One was three days a week in the serology department at Hutt Hospital, and the other, one day a week in the Enteric Reference Laboratory (ERL) at ESR. After a year I became full time at ESR. By this time I had one more paper to do for my Post Graduate Diploma, which was a research project. ESR is very supportive of staff training and enabled me to base my research project around my work in ERL.

I decided to do my Fellowship dissertation because I felt it would be a very worthwhile qualification, and because I wanted to further explore data that had come out of my research project. My dissertation was entitled "Classical enteropathogenic Escherichia coli or atypical strains? Examination of Shiga toxin negative, eaeA positive isolates received in the Enteric Reference Laboratory in 2000".

Again, ESR was very supportive of my efforts, and I found the experience of writing the dissertation invaluable as it helped me gain research and writing skills. Having my dissertation published in the Journal meant that my findings could be made available to diagnostic laboratory staff, whom uses our reference laboratory services. In addition, gaining my Fellowship qualification gave me the confidence to study for an MSc in Medical Laboratory Science, which I will complete this year.

I recommend studying for a Fellowship of our Institute for medical laboratory scientists, especially those who trained via polytechnic as I did, because it provides a professional qualification which is recognised overseas as well as in New Zealand. Fellowship of the NZIMLS will enable polytechnic-trained scientists to practise in Australia. In addition, I believe that studying for a Fellowship supports the Institute, the Journal, and the profession as a whole.

Ann Thornton, FNZIMLS

I started my training as a laboratory assistant in the histology department at Wellington Hospital. After two and a half years I sat and passed my QTA in histology and about four years later qualified as a QTA in cytology after moving on to Medical Laboratories in Wellington. After a few years working in both cytology and histology I left New Zealand for my OE and overseas experience.

When I came back to work full time at the Histology Department at Wellington Hospital I was given the opportunity to attend the Wellington Polytechnic to obtain my NZCS. The experience as a mature student was rewarding and in what seemed a very short time I had gained my qualification, O and A levels in histology followed.

During the time I was studying for O levels I began work at the Wellington School of Medicine as a research technician participating in a research project concerned with the histological changes in fatal asthma deaths. The move from the clinical laboratory to research was a challenge but one that I thoroughly enjoyed. This was followed by a move to the Pathology Department where I participated in varied research projects. My contribution to that research resulted in a number of publications in peer-reviewed journals.

With a large amount of encouragement and support from the Pathology Department I decided to sit the Fellowship using the option of a dissertation summarising 10 of the published papers in which I had been involved. My dissertation was entitled "Assessment of tumour outcome using immunohistochemical techniques."

The Fellowship qualification, as the highest qualification in our profession, is a qualification that is well worth achieving, especially for those who have been through the previous polytechnic system. It provides recognition both in New Zealand and overseas, the standard is consistently high, it is a tangible reward for years of solid work, and provides insight to the larger medical community of the contribution medical laboratory scientists make in the profession.

Fellowship committee

Chris Picket, MNZIMLS; Medlab Hamilton

Ann Thornton, FNZIMLS; Wellington School of Medicine & Health Sciences

Rob Siebers, FNZIMLS; Wellington School of Medicine & Health Sciences

Journal-based questionnaire

Journal-based questionnaire for this the April 2007 issue
Below are 10 questions based on this issue of the Journal. The answers can be found anywhere, thus read the entire Journal.

Answers are to be submitted through the NZIMLS web site only (www.nzimls.org.nz) , no mail, email or fax submissions will be considered. Before hitting the return button with your answers make sure that you have supplied your email address and that it is correct. It is the only means for us to notify you of your CPD points.

The site for submitting your answers will remain open until 5pm on Tuesday 1 May 2007 after which it will close. You must get at least 7 questions right to earn 5 CPD points. You will be notified once the Editor and Deputy-Editor have checked your answers

1. What is the new prize worth for the best case study published in the Journal during the whole year?
2. How many years has the Journal been continuously published as of the end of 2006.
3. Name two of the three ways that Fellowship of the Institute can be obtained.
4. Candidates applying for Fellowship by examination may be exempted the Part 1 examination if they are holders of an approved post graduate qualification. True or false?
5. What is still the gold standard for malaria diagnosis?
6. What is more sensitive for malaria diagnosis, the thin film or thick film, and why?
7. Parasites are always found in peripheral blood smears from patients with malaria. True or false?
8. What method allows the detection of drug resistant parasites and mixed infections?
9. What are the two advantages of rapid methods for the diagnosis of malaria.
10. What are the three disadvantages of rapid methods for the diagnosis of malaria?

Questions and answers for the November 2006 journal-based questionnaire
We again received a very good response rate for the previous questionnaire. During 2006 about 450 members submitted answers for each Journal issue. Below are the questions from the November 2006 issue with the correct answers.

PCR is a rapid and reliable method for detecting HSV infection.
True

Sixty-five specimens from cutaneous and genital sites were found to be HSV positive
False – 55 specimens.

HSV is the most frequently detected virus in most clinical laboratories
True

Traditionally, EIA has been the gold standard in the diagnosis of infections due to herpes simplex virus
False – cell culture has been the gold standard.

EIA had a significantly higher detection of herpes simplex virus rate than both cell culture and PCR.
False – cell culture had a significantly higher detection rate.

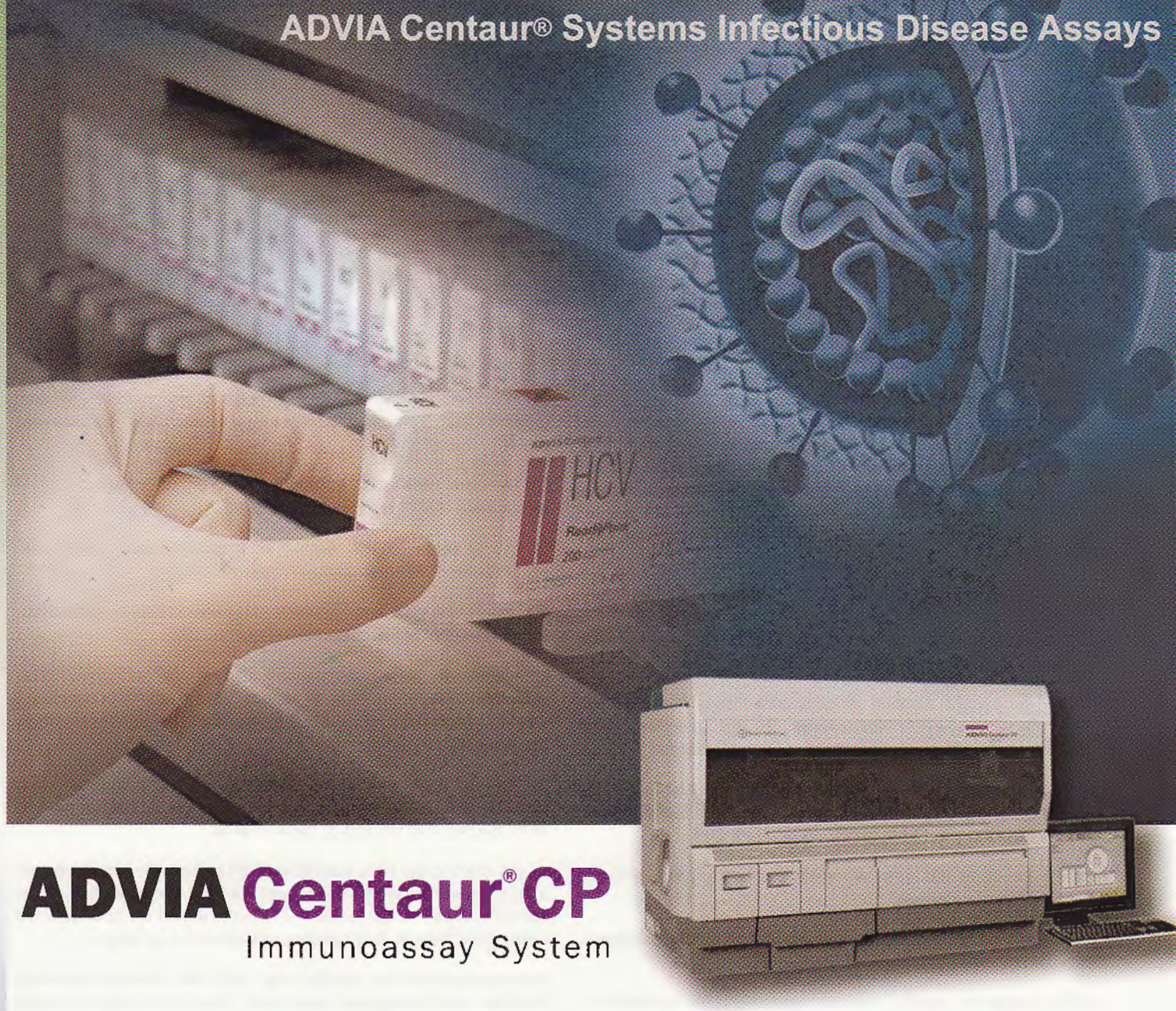
Patients with thrombotic thrombocytopenic purpure have large multimers of von Willebrands factor
True

Only 10% of children infected with STEC O157:H7 will develop haemolytic uraemic syndrome
False – 5% of children.

Mycosis fungoides is a T-lymphocytic lymphoma
True

Over half of patients with mycosis fungoides die within a year of onset of the disease
False – over half of patients die within 10 years

Many members of the NZIMLS still confuse the different roles of the NZIMLS, the Medical Laboratory Science Board and the Union.
True



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Diagnostics Division

Regional workshop LabNet 2006

In an effort to promote the Pacific Public Health Surveillance Network's (PPHSN) ongoing activities for laboratory support, the Secretariat of the Pacific Community (SPC), together with the WHO, the Pasteur Institute New Caledonia and other allied members, organised a workshop, "LabNet 2006'.The workshop was held from 31 July – 4 August 2006 at the Institute of Research and Development in Noumea, New Caledonia.

The objectives of the meeting were to:

- update the participants on the progress of LabNet development, including laboratory based surveillance activities;
- assess the current situation of laboratory testing and specimen shipment with regard to PPHSN target diseases, and plan further developments, particularly for pandemic flu preparedness;
- review and discuss the linkages and support available through reference laboratories of the Australian and New Zealand Public Health Laboratory Network;
- discuss and clarify the technical aspects of laboratory tests available for PPHSN target diseases;
- discuss participants' experiences in the use of rapid tests (Leptospirosis, dengue and influenza); and
- further assess the training needs of laboratory health professionals, and demonstrate test methods.

20 Pacific Island country members of the PPHSN attended with only Tokelau and Guam members not attending.

The meeting focused on the major issues and functions of LabNet activities: the performance of PPHSN testing, specimen shipping and quality assurance activities.

[At the initial LabNet meeting held 2000 it had been agreed that the target diseases of the PPHSN were typhoid, cholera, measles/rubella, dengue, leptospirosis and influenza. Although HIV is a separate programme, the laboratory testing for HIV is now included with these others in the PPHSN schema.]

At the meeting presentations given included:

Mr John Elliot (PPTC, NZ) on quality assurance activities and mechanisms;

Mr Subroto Baneji (CDC, USA) on current specimen handling, packaging and shipping mechanisms;

Ms Sue Best (NRL, Australia) on HIV testing standards and quality assurance, updated proposals and mechanisms, and L3 test provisions at NRL;

Dr Alain Berlioz-Arthaud (IPNC) on updated test methods (dengue, influenza, etc), leptospirosis surveillance data and L2/L3 test provisions at IPNC:

Dr Ian Barr (WHO-CC, Melbourne) on current influenza testing mechanisms and L3 test provisions at WHO-CC;

Dr Isabelle Bergeri (WHO, Manila) on WHO provisions, support and resources for LabNet performances; and

SPC epidemiologists and specialists on current testing mechanisms, future LabNet activities and epidemiology functions.

In addition to these presentations, participants worked in group sessions during the meeting to address current LabNet activities and identify deficiencies and issues relating to the laboratory diagnosis of these infections.

On the social side participants attended a cocktail party along with participants from the 3rd Stop TB meeting also being held at the SPC and a barbeque at the end of the workshop.

At this meeting the PPTC was represented by both Christine Story and John Elliot and we were able to meet with the laboratory staff of the various countries to discuss the PPTC's activities and see how we could better assist them in their development of laboratory services.

Acknowledgments:The meeting was held with financial assistance from the Asian Development Bank [ADB], France and the New Zealand Agency for International Development [NZAID] through the PREPARE project, and the Global Fund to fight AIDS, Tuberculosis and Malaria [GFATM].

Participants from the Regional LabNet Workshop 2006

Laboratory based influenza surveillance

This surveillance programme aims at describing influenza virus circulation in Pacific Island Countries. It involves obtaining basic epidemiological data and respiratory specimens from both hospital and regional health-care centres, along with laboratory testing of the samples. Two tests will be evaluated in the laboratories for detection of influenza: direct immunofluorescence and EIA rapid tests. Counties involved in the project include Cook Islands, Tonga, Palau, Guam and Fiji Islands. The programme will be extended to more Pacific Island Countries in 2007.

Laboratory staff from the Cook Islands and Tonga attended a training Course on immunofluorescence for Influenza Laboratory diagnosis at ESR in Porirua in August 2006.

3rd Stop TB meeting

The 3rd Stop TB in the Pacific Islands Meeting was held in Noumea at the same time as the LabNet meeting reported above. TB managers and laboratory technologists from most of the Pacific Island countries and territories were present at this meeting which was held under the conjoint management of WHO and SPC. In his opening address Dr Jimmie Rodgers, the Director-General of SPC, said that although a great deal of progress had been made in the past few years in the diagnosis and treatment of TB in the Pacific there was still a lot of work to do.

All countries in the Pacific have introduced DOTS [Directly Observed Treatment with standardised Short-term treatment] and the majority have reached the initial WHO goal of detecting 70% of projected cases and curing 85% of these. As outlined at this meeting, the goal for the next period 2006 – 2011 is to increase the detection rate to at least 80% of projected cases and have a cure rate in excess of the current 85%.

The laboratory and its staff will play a role in achieving the case detection rate goal and so considerable resources both financial and human are being made available. Every laboratory in the region has been partnered with a 'reference' laboratory which is responsible for the EQA programme. This programme is three pronged and involves on-site evaluation of the Pacific Island laboratory, the sending of unstained panel tests to each laboratory and the blinded rechecking of stained smears (using the WHO EQA protocol) from the Pacific Island laboratories. The PPTC has been made responsible for this programme in Samoa, Kiribati, Cook Islands, Niue and Tuvalu.

At this meeting the PPTC was represented by John Elliot and it was an opportune time to meet with the laboratory staff from the countries to discuss and set-up protocols and systems to ensure that this TB EQA programme works efficiently

Distance learning courses

In December 2005 the PPTC signed an agreement with the WHO POLHN (Pacific Open Learning Health Net) to develop and teach a basic course in Medical Laboratory Technology. The POLHN has computer laboratories in 10 Pacific Island Countries linked to the Internet.

The first module of this course - Clinical Biochemistry - commenced in September 2006 consisting of 6 modules of PowerPoint lectures and a practical logbook.

38 students have completed this module which involved emailing back to the PPTC answers to multi-choice questions and logbooks to be assessed.

67 students enrolled in the Haematology Module commencing in November 2006. This module also consists of PowerPoint lectures and a workbook to be completed. The majority of students have completed the multi-choice component and have sent back logbooks to be assessed.

The Blood Bank, Microbiology and Immunology Modules will be completed in 2007. A Laboratory Management and Quality Systems Course will also be run this year 2007.

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Stairway to Science

South Pacific Congress

Auckland, New Zealand

AUGUST 21st - 24th 2007

New Zealand Institute of Medical Laboratory Science
Australian Institute of Medical Sciences
New Zealand Cytology Society

HSIG questionnaire

Haematology
Special Interest Group

Review article:
Hepcidin: an important new regulator of iron homeostasis. Journal of Clinical and Laboratory Haematology, 2nd April 2006, 28, Number 2, p. 75 – 81.

Questions:
1. What is Hepcidin?
2. What are the two mechanisms of action of Hepcidin?
3. In which two organs is Hepcidin localised?
4. i) What is the total body iron in men?
   ii) What is the daily requirement of iron for erythropoiesis?
   iii) What is the daily loss of iron from the body?
   iv) What amount of iron is required for the body's daily needs?
5. Complete the following:
   i) Dietary iron is transported through the apical....
   ii) An increase in serum iron will result...
   iii) As iron continues to be utilised serum iron....
6. Patients with IA showed what levels of Hepcidin?
7. i) List the 4 types of Hereditary Haemochromatosis. (HH)
   ii) How does the level of Hepcidin affect the pathogenesis of HH?
8. What would the Hepcidin levels be in:
   i) Anaemia of Chronic Disorders/Inflammation.
   ii) Iron Deficiency Anaemia.
   iii) Nongenetic iron overload.
9. What effect do hypoxia and anaemia have on the Hepcidin level in a patient with a co-existing iron overload?
10. What is LEAP 1 and what is its relation to hepcidin?

Questions prepared by Sheila Ryken, Haematology Dept. Diagnostic Medlab, Auckland. For a copy of the journal article Ph. 09 571 4072 or e-mail; sryken@dml.co.nz

Answers on page 22

Histology

Special Interest Group

Another year has passed and again the histology community have shown what a friendly and lively bunch they are. The Histology Special Interest Group Conference was held last November at the beautiful Wairakei Resort in Taupo.The conference was a great success with a huge thank you and congratulations going out to the LabPlus committee, in particular Joe McDermott and Steve Cooke.

The conference started off on Friday with two workshops in the morning. The first workshop session was presented by Vision Bio-systems and focused on New Developments, which included a range of antibodies with new clones as well as a discussion on probes available for In-Situ Hybridisation.

The second part of Vision Bio Systems workshop was focused on 'same day diagnoses'. This has become an important part of any laboratory with turnaround time constantly being under review and new systems being put in place to decrease it.

Vision Bio systems introduced their Immunohistochemistry staining machine, the Bond Max and their new processor, the Peloris. Both machines make it possible to achieve results fast and reliably which benefits technical staff, pathologists and most importantly the patient.

The second workshop session was presented by Ventana which walked the audience through the structure of their company, the machines that they produce and finally the machines that are currently available.

A presentation of the Benchmark XT IPX/ISH machine and the NexEs staining machine was given. Both of these machines use Liquid cover-slip technology, an advantage that other machines don't have. The workshops opened people's eyes to the wonderful array of new technology coming through the histology sector.

After overloading on the technical side of things the afternoon was left for a bit of rest or recreation. The LabPlus Committee organised what started off to be a friendly Ambrose golf competition. Groups of four were sent off to work as a team to gain the lowest 9 hole round. The rules were simple (for some), every member of the team took a shot. The best shot, not necessarily the longest, was decided by the team. From there the other three team members collected their golf ball and took it to the decided best shot and played another shot from that point. Unfortunately not every team could be watched and from discussion and a few spy's out on the fairway a tiny bit of cheating occurred. But all and all a winning team was found and a good day was had by all. Prizes were given to the winning team and the person who lost the most golf balls. No names mentioned. Everyone was invited back to the bar at the hotel for social drinks to meet the new and catch up with the old acquaintances.

Day two was the main event with speakers from all over New Zealand and Australia. Our first speaker was Cheryl Goodyear, Manager of Whanau Care at Capital & Coast Health. Her talk was title 'Body Parts

and Return to Patient'. Cheryl gave an in-depth talk that took the audience through their system of returning tissue including examples of information brochures given to patients, packaging and auditable paper trails. Returning tissue back to patients is a very important part of histology and one that is becoming more important.

Automating special stains was our second talk of the morning given by David Gan from Queensland Medical Laboratory. David gave an excellent comparison of two automated special staining machines, the Artisan by Dako and the NexEs by Ventana. A very difficult presentation to give as both companies had equipment set up in the same room. But despite the pressure from both sides an excellent comparison was given with pros and cons for both machines explained.

Our next speaker had the audience's undivided attention as he spoke about disaster planning. Simon Stables is the Clinical Head of Forensic Pathology at LabPlus. He gave an in-depth look at how forensic pathologists access and work through various disaster scenes. This talk had a lot of squeamish people writhing in their seats with a few interesting photos being shown. Simon certainly gave us all a greater appreciation of the scale and complexity forensic teams must work through to be able to identify the dead.

Isobel Early from Diagnostic Medlab in Auckland gave our next talk titled Nutritional Values. This talk made us all think about our diets and the effects various food groups have on our bodies.

Quality Assurance ended the morning session. Leanne Gilles from the RCPA in Australia gave an insight into the RCPA programme and some of the new features. This talk gave a greater understanding of the scoring system that often mystifies those who send their labs RCPA tasks away for assessment.

Lunch came and went giving everyone in attendance the chance to grab a bite to eat and catch up with familiar faces. This was also a great opportunity to investigate laboratory products and freebies at the various stalls around the room.

Talks continued after lunch with Colin Woods from Cytology at LabPlus talking about Cyto/Histo correlations. Colin did a comparison of a study that he performed to that of published data for sensitivity and specificity on lung cancers.

Fantastic Elastic by Tracy Gunn was the next talk of the afternoon. A comparison of various elastic stains on temporal artery, lung and aorta tissue was made and evaluated. Beautiful photos showed the difference in staining intensities and the shelf life of each stain. Both Millers Elastic and Non-differentiating Verhoeffs was a suggested favourite with pros and cons given for each.

Presenting next was Sharita Meharry from Middlemore Hospital giving a talk on bone tumours. Both benign and malignant bone tumours were discussed with examples of each. An interesting fact that came from this talk was the sectioning of non-decalcified bone for metabolic bone disorders.

Judy Brincat from Australia presented next with her topic on Histology Special interest activities in Australia. This was interesting to see how our cousins on the other side of the pacific keep in touch. There are four groups based in New South Wales, Queensland, Victoria and South Australia. Three of the four groups have websites and every two years a national meeting is held. Weekend meetings are also a regular occurrence for most of the groups.

To round off the presentations was Jillian Broadbent from Canterbury Health Labs who clued us up on the workings of the CPD points programme. New ways of accruing CPD points has been introduced which was followed by a small cheer from the audience.

A final wrap up was given by Joe McDermott, technical head or anatomical pathology and the HSIG convenor from LabPlus. A brief introduction to the Stairway to Science conference was given that is to take place in August at Sky City in Auckland. It sounds like a fantastic week of workshops and presentations from around the world.

All of the speakers did an outstanding job with the winning presentation going to Fantastic Elastic by Tracy Gunn.

The conference was ended in style with a beautiful dinner. An outstanding performance by the LabPlus band, "The Residents", made for lots of singing and dancing after dinner. The night brought with it a karaoke competition that unfortunately didn't bring many to the stage to grace the room with their singing capability. The few that were brave enough, or a little tipsy, got up and belted out a tune. They all did a great job but the winner on the night was Steve Kim from LabPlus. Steve, your singing was great but your dancing was... hmm... spectacular! I have only four words for you, Living la Vida Loca!

It was an outstanding night and the perfect way to end such a fantastic conference. Look forward to seeing you all in August 2007.

Answers to HSIG questionnaire:

1. An iron regulatory hormone.
2. i) Hepcidin inhibits Ferroportin (FPN) which transports iron out of cells, particularly the enterocytes and liver macrophages. As body iron stores increase, hepcidin is induced, which then inhibits the efflux of iron. This blocks the absorption of iron.
   ii) Hepcidin is an acute phase reactant which is induced by Interleukin (IL) 6 and markedly induced by infection and inflammation. This may reflect an evolutionary defence mechanism against invading organisms and tumour cells for which iron is an essential nutrient needed for proliferation.
3. i) Liver
   ii) Kidney
4. i) 3000 – 4000 mg, ii) 25 – 25 mg, iii) 1 – 2 mg, iv) 0.5 – 2 mg
5. i) Dietary iron is transported through the apical plasma membrane by divalent metal transporter 1 (DMT1) , stored as Ferritin or released into the plasma by FPN, a basolateral surface membrane iron exporter.
   ii) An increase in serum iron will result in hepatic production of Hepcidin, which interacts with FPN on the enterocyte membrane to cause internalisation of the complex.
   iii) As iron continues to be utilised, serum iron will fall which will lead to suppression of Hepcidin secretion, with resultant strong expression of FPN and iron transfer across the enterocyte basolateral membrane restoring serum iron levels.
6. Significantly reduced levels of Hepcidin.
7. 1. i) Type 1 caused by mutations in the HFE gene.
      ii) Type 2 or juvenile haemachromatosis (JH).
      iii) Type 3 associated with a mutation of a low affinity transferrin receptor (TFR2)
      iv) Type 4 associated with the iron exporter Ferroportin.
   2. Low Hepcidin levels in types 1, 2, and 3 HH causes more severe iron overloading.
8. i) Raised
   ii) Reduced
   iii) Raised
9. Anaemia and hypoxia decrease Hepcidin levels in patients with a coexisting iron overload. This results in an exacerbation of iron overload.
10. LEAP 1 was the first identified member of a family of small widely distributed antimicrobial peptides **L**iver – **E**xpressed – **A**ntimicrobial – **P**eptide 1. LEAP1 is Hepcidin.

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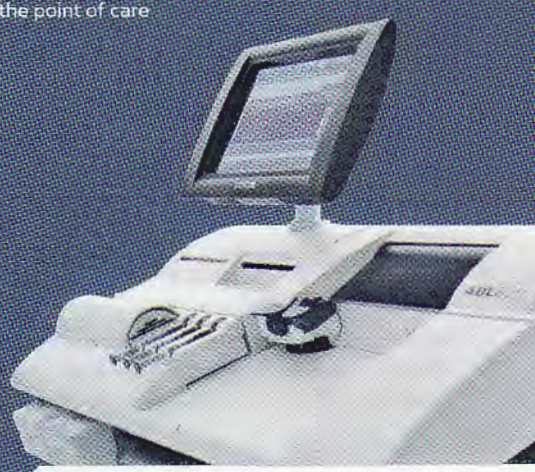

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British Journal of Biomedical Science abstracts

Akinloye O, Ogbolu DO, Akinloye OM, Terry Alli OA. Asymptomatic bacteriuria of pregnancy in Ibadan, Nigeria: a re-assessment. Br J Biomed Sci 2006; 63: 109-12.

Asymptomatic bacteriuria in pregnancy is the major risk factor for developing symptomatic urinary tract infection during pregnancy. In the present study, 300 pregnant women are screened for significant asymptomatic bacteriuria in order to provide an insight into the prevalence in developing countries, reassessment of some predisposing factors and aetiological agents and their susceptibility tests. The mean age of the patients in the study is 26.8 years (SD: 5.8 years, range: 16-40 years). Using 10(3) organisms/mL as a significant level of bacteriuria, the prevalence was found to be 21.0%. One hundred and fifty-eight samples had no pus cells, with 25 showing significant bacteriuria, 116 samples contained 1-4 pus cells/high power field (hpf) with 25 showing significant bacteriuria, while 26 samples had > or = 5 pus cells/hpf with 13 showing significant bacteriuria. There was no particular trend associated with age and rate of infection. However, there was a decline in the rate of infection in the 26-30 age group, with a sharp increase as age increased. There was high incidence of bacteriuria during the third trimester of pregnancy (21.9%) compared with that in the first trimester (7.7%), while the level in the second trimester was 22.5%. Multiparity is associated with increased bacteriuria in pregnancy. Thirty-one (49.2%) isolates grew Gram-negative bacilli; 27 (42.9%) grew Gram-positive cocci and the remainder (7.9%) grew yeast-like cells. Staphylococcus aureus was the most frequent pathogen (41.3%), followed by Klebsiella species (33.3%) and Escherichia coli (11.1%). Bacterial isolates from this study were most sensitive to ceftazidime, followed by ceftriazone, and least susceptible to co-trimoxazole.

Hooton C, Dempsey C, Keohane J, O'Mahony S, Crosbie O, Lucey B. Helicobacter pylori: prevalence of antimicrobial resistance in clinical isolates. Br J Biomed Sci 2006; 63: 113-6.

This study aims to determine the in vitro susceptibility of Helicobacter pylori to clarithromycin, metronidazole, amoxycillin and tetracycline, the four antibiotics commonly used in eradication therapies. These data are used to evaluate the efficacy of current empiric treatment of H. pylori infection in the Southern Region of Ireland. Culture is performed on gastric biopsy samples obtained from 147 consecutive patients undergoing gastroscopy for investigation of dyspepsia. Susceptibility testing to metronidazole, clarithromycin, amoxycillin and tetracycline is performed on the isolates by Etest. Isolates demonstrating clarithromycin resistance are subjected to polymerase chain reaction (PCR) amplification and nucleotide sequence analysis to identify the presence of point mutations in the peptidyltransferase region of the 23S rRNA gene previously associated with resistance to clarithromycin. Prevalence of H. pylori in the population studied was 31% (45 isolates). Antimicrobial resistance to metronidazole and clarithromycin was detected in nine (20%) and four (8.9%) of the isolates, respectively. A single isolate demonstrated co-resistance to metronidazole and clarithromycin (2.2%). No resistance was detected to either amoxycillin or tetracycline. The low level of resistance demonstrated among this group of isolates indicates that the empiric treatment currently in place in the Southern Region of Ireland is likely to be successful.

Ezenwaka CE, Kalloo R, Uhlig M, Schwenk R, Eckel J. Serum adiponectin levels and enzyme markers of liver dysfunction in diabetic and non-diabetic Caribbean subjects. Br J Biomed Sci 2006; 63: 117-22.

Low adiponectin levels are associated with elevated plasma alanine aminotransferase, a marker of reduced hepatic insulin sensitivity and a risk factor for type 2 diabetes. This study aims to determine the relationship between serum adiponectin level and alanine aminotransferase in diabetic and non-diabetic subjects. Fifty-six type 2 diabetic patients and 33 non-diabetic subjects participate in the study. Baseline plasma concentrations of alanine aminotransferase, aspartate aminotransferase, alkaline phosphatase and glucose are measured on a chemistry analyser. Insulin and adiponectin are measured using enzyme-linked immunoassay techniques and insulin resistance is determined using the homeostatic model assessment method. Diabetic patients showed significantly lower levels of serum adiponectin than did the non-diabetic subjects, whereas levels of alanine aminotransferase and alkaline phosphatase were similar in both groups. While female non-diabetic subjects showed higher serum adiponectin levels than did female diabetic patients, alanine aminotransferase level did not differ ($P>0.05$). No significant relationship was seen between adiponectin and alanine aminotransferase in diabetic and non-diabetic subjects ($P>0.05$). Serum adiponectin levels were higher in non-diabetic subjects but there was no significant correlation between adiponectin and alanine aminotransferase in both groups of subjects. The data suggest that low serum adiponectin level may not be a suitable marker for impaired liver function in diabetic patients.

Peng BG, He Q, Liang LI, Xie BH, Hua YP, Chen ZB, et al. Induction of cytotoxic T-lymphocyte responses using dendritic cells transfected with hepatocellular carcinoma mRNA. Br J Biomed Sci 2006; 63: 123-8.

This study aims to induce an efficient expansion of cytotoxic T-lymphocytes (CTL) from peripheral blood mononuclear cells (PBMCs) using dendritic cells (DC) transfected with hepatocellular carcinoma (HCC) messenger RNA (mRNA) for adoptive immunotherapy of HCC. Dendritic cells are generated from PBMCs. HCC mRNA is isolated either from HepG-2 cells or from tumour tissue from three HCC patients, and then amplified using the polymerase chain reaction (PCR). Expansion of CTLs is achieved from PBMCs induced by DCs transfected with HCC mRNA and cytotoxicity is measured using a crystal violet staining assay. The proportion of CD3+, CD4+ and CD8+ cells is determined using flow cytometry. Dendritic cells transfected with the total HCC mRNA stimulated antigen-specific cytotoxic T-cell responses that are capable of recognising and killing autologous tumour cells in vitro. The cytotoxic activity was inhibited by treatment with anti-CD3, anti-CD8 and anti-MHC class I monoclonal antibodies, but not with anti-CD4 and MHC class II antibodies. In conclusion, HCC mRNA-transfected DCs may represent a broadly applicable vaccine strategy to induce potentially therapeutic CTL responses in HCC.

Abosl AO, Mbukwa E, Majinda RR, Raserok BH, Yenesew A, Midiwo JO, et al. Vangueria infausta root bark: in vivo and in vitro antiplasmodial activity. Br J Biomed Sci 2006; 63: 129-33.

Vangueria infausta burch subsp. infausta (Rubiaceae) produces fruits eaten by humans and animals. The leaf, fruit, stem bark and root bark are used as a remedy for many ailments and the roots are used to treat malaria. In this study, concentrations of fractions of the V. infausta root bark extract that produce 50% inhibition (IC50) are determined using the ability of the extract to inhibit the uptake of [G3H]-hypoxanthine by P. falciparum cultured in vitro. The root bark extract showed antimalarial activity against Plasmodium berghei in mice. It gave a

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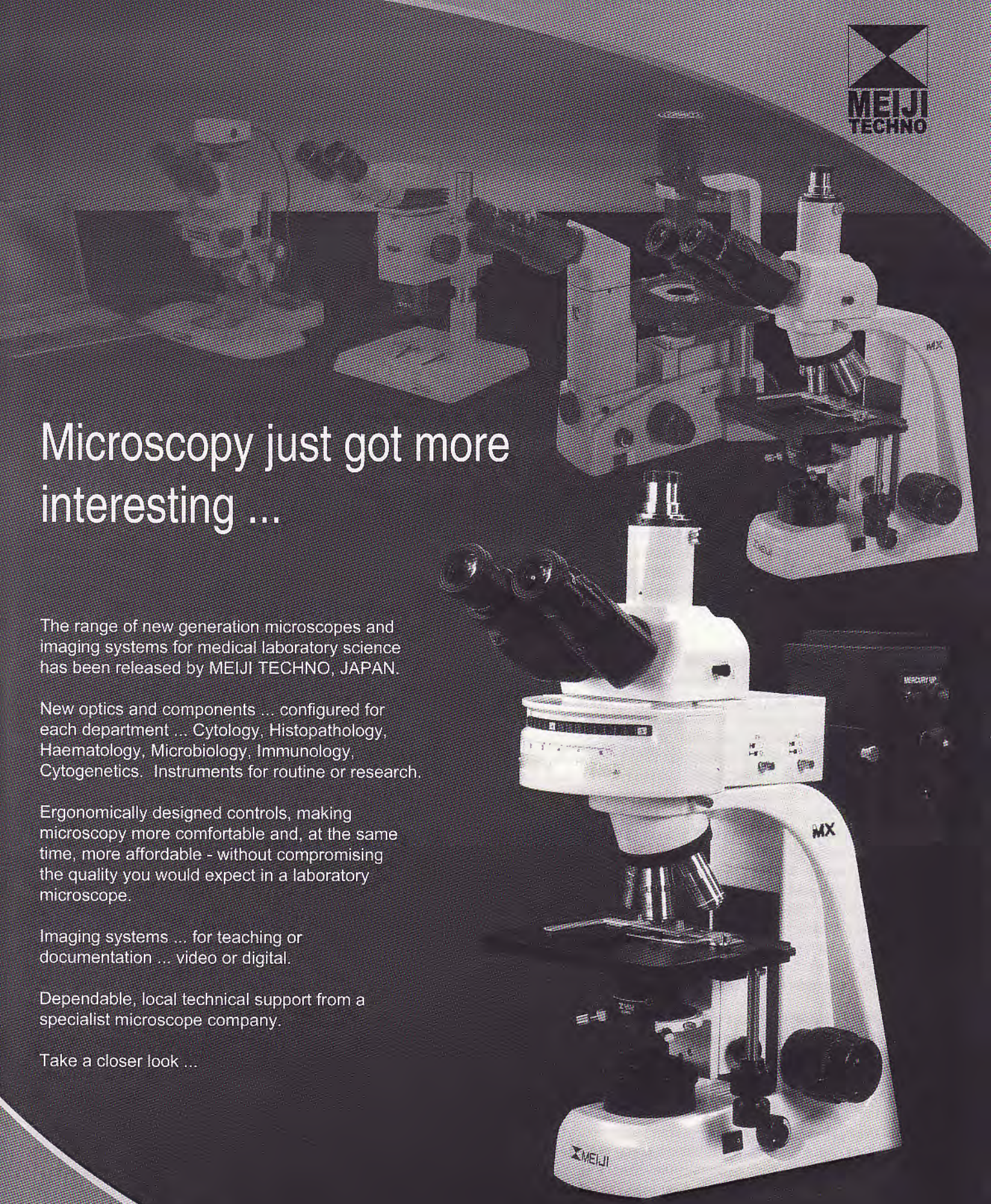

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parasite suppression of 73.5% in early infection and a repository effect of 88.7%. One fraction obtained from a chloroform extract gave an IC50 value of 3.8 +/- 1.5 microg/mL and 4.5 +/- 2.3 microg/mL against D6 and W2 strains of P. falciparum, respectively, and another from the butanol extract gave an IC50 value of 3.9 +/- 0.3 microg/mL against the D6 strain. Chloroquine had an IC50 value of 0.016 microg/mL and 0.029 microg/mL against D6 and W2 strains, respectively. The plant showed the presence of flavonoids, coumarins, tannins, terpenoids, anthraquinones and saponins.

Oguntibeju OO, Van Den Heever WM, Van Schalkwyk FE. Effect of a liquid nutritional supplement on viral load and haematological parameters in HIV-positive/AIDS patients. Br J Biomed Sci 2006; 63: 134-9.

The effect of a nutritional supplement on the immune status and haematological parameters of HIV-positive/AIDS patients is tested using standard procedures. This clinical trial of 35 patients consists of a baseline visit and three months of supplementation from April to September 2003. Results showed that viral load decreased significantly ($P<0.002$) with time following supplementation. Mean cell volume (MCV) and mean cell haemoglobin concentration (MCHC) increased significantly ($P<0.002$ and $P<0.0002$, respectively), reflecting the positive effect of the supplement on these haematological parameters. Supplementation had no effect on CD4+ T-cell count, which decreased significantly with disease progression. Owing to certain limitations of the study (small sample size, short duration and the late stage of HIV infection), further studies are needed to confirm the effect attributed to the supplement.

Kader AA, Kamath KA, Dass SM. Accelerated detection of extended-spectrum beta-lactamases in clinical isolates of Enterobacteriaceae. Br J Biomed Sci 2006; 63: 151-4.

A prospective study is carried out to evaluate the performance of a protocol for the accelerated detection of extended-spectrum beta-lactamases (ESBLs) in clinical isolates of Escherichia coli, Klebsiella pneumoniae and other Gram-negative bacteria. A modified double-disc test (MDDT) is incorporated in a Gram-negative template for routine susceptibility testing. The MDDT identified accurately ESBLs in all isolates subsequently confirmed as ESBL-producers by the standard Clinical Laboratory Standards Institute (CLSI) combined disc method. Of 1213 isolates tested, 98 (8%) were positive for ESBLs by MDDT and 95 (7.8%) were positive by the CLSI method. ESBLs were detected in 48 (7.8%) E. coli, 21 (8%) K. pneumoniae, 12 (5.8%) Proteus mirabilis, 13 (18.8%) Providencia stuartii and four (6.8%) Enterobacter cloacae isolates. Time required for ESBL detection by the MDDT method was one day. The protocol described provides a simple, rapid and low-cost method for early detection of ESBLs in Gram-negative bacteria.

Abu-Sabaah AH, Ghazi HO. Better diagnosis and treatment of throat infections caused by group A beta-haemolytic streptococci. Br J Biomed Sci 2006; 63: 155-8.

This study aims to assess the diagnostic value of a rapid streptococcal antigen test in addition to four clinical features in patients with sore throat, using throat culture and antibody titre as reference tests, and to evaluate the efficacy of the current antibiotics used in the treatment of throat infections caused by group A beta-haemolytic streptococcus (GABHS). Four clinical features (fever [history of] > or = 38 degrees C, lack of cough, tonsillar exudate, and anterior cervical lymphadenopathy) are recorded in 355 patients aged four years to > or =15 years. A rapid antigen diagnostic test (RADT) is performed, as well as a throat culture. Antistreptolysin O (ASO) titre is performed in patients 11 years. GABHS from patients are tested for susceptibility to different antibiotics. Throat cultures were positive for GABHS in 19% patients. Rapid tests were positive in 24%. Compared with throat culture, the rapid test gave a sensitivity of 91%, specificity of 91%, positive predictive value of 73% and a negative predictive value of 98%. For patients with three or four clinical features, however, the sensitivity was considerably higher at 97%. Using the ASO test as a reference, no association was found between RADT and culture results. Zithromax showed the highest prescription rate (25.5%) and produced a high cure rate (91%) in patients with GABHS pharyngitis.

Yakoob J, Abid S, Jafri W, Abbas Z, Islam M, Ahmad Z. Comparison of biopsy-based methods for the detection of Helicobacter pylori infection. Br J Biomed Sci 2006; 63: 159-62.

Various biopsy-based methods for the detection of Helicobacter pylori are evaluated to determine their sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV), followed by polymerase chain reaction (PCR) for the 16S ribosomal RNA (rRNA) gene of H. pylori (16S PCR) to confirm the results. Seventyfive patients (65% [49] males, age range: 17-77 years, mean 42+/-14.6 years) with dyspeptic symptoms are included in the study. Gastric antrum biopsy specimens collected during endoscopy are tested using a urea agar base enriched with 40% urea solution (eUAB, Oxoid)), a commercial rapid urease test (Pronto Dry, Medical Instrument Corp, Switzerland), histopathology and 16S PCR. The eUAB test showed 97% sensitivity, 86% specificity, 84% PPV, 97% NPV and 91% accuracy when the diagnosis of H. pylori infection was made with positive Pronto Dry and histopathology. Pronto Dry showed 100% sensitivity, 82% specificity, 80% PPV, 100% NPV and 89% accuracy when the diagnosis of H. pylori infection was made on positive histopathology and eUAB. Thus, the eUAB can be used as a rapid urease test. It is economical and has a sensitivity and specificity comparable to a commercially available rapid urease test to detect urease activity of H. pylori in gastric biopsy.

Alqahatani M, Tamimi W, Aldaker M, Alenzi F, Tamim H, Alsadhan A. Young adult reference ranges for thyroid function tests on the Centaur immunoassay analyser. Br J Biomed Sci 2006; 63: 163-5.

This study aims to establish reference ranges for thyroid tests in young Saudi adults using the Centaur immunoassay method. Physical examination is performed and thyroid function tests include thyroid stimulating hormone (TSH), free thyroxine (FT4) and free triiodothyronine (FT3). These are performed on 291 young Saudi adults (182 [63%] females and 109 [37%] males; average age: 27 years [range 18-50]). Clinical thyroid abnormality, related symptoms and/or abnormal thyroid function tests exclude a person from the study and thus a total of 276 subjects (171 [62%] females and 105 [38%] males) are used to establish the new reference ranges. Combined female and male ranges for TSH, FT4, and FT3 were found to be 0.48-6.30 miu/L (9.00-18.62 pmol/L and 3.39-6.85 pmol/L, respectively). Mean TSH and FT4 levels were significantly different ($P<0.0001$) from those quoted by the manufacturer. Ranges for TSH were 0.48-6.30 miu/L (female) and 0.52-4.89 miu/L (male) ($P=0.08$). Female ranges for FT4 and FT3 were 9.00-17.15 pmol/L and 3.39-5.82 pmol/L, respectively. Male ranges were 9.92-18.62 pmol/L ($P=0.0001$) and 4.36-6.85 pmol/L ($P<0.0001$). The range of TSH levels in the young local Saudi population proved to be higher than that quoted by the manufacturer. FT4 range was lower and narrower than that quoted by the manufacturer. Significant differences between female and male populations suggest that partitioning of the reference ranges by gender is necessary.

Hughes SF, Cotter MJ, Evans SA, Jones KP, Adams RA. Role of leucocytes in damage to the vascular endothelium during

ischaemia-reperfusion injury. Br J Biomed Sci 2006; 63: 166-70.
During this investigation, a model of tourniquet-induced forearm ischaemia-reperfusion injury is employed to investigate the role of leucocytes in damage to the vascular endothelium during ischaemia-reperfusion injury. Leucocyte entrapment is investigated by measuring the concentration of leucocytes in venous blood leaving the arm. Neutrophil and monocyte leucocyte subpopulations are isolated by density gradient centrifugation techniques. Cell surface expression of CD11b and the intracellular production of hydrogen peroxide are measured via flow cytometry. Plasma concentrations of elastase and von Willebrand factor (vWF) are measured using enzyme-linked immunosorbemt assay (ELISA) techniques. During ischaemia-reperfusion, there was an increase in CD11b cell surface expression on neutrophils (P=0.040) and monocytes (P=0.049), and a decrease in peripheral blood leucocytes (P=0.019). There was an increase in the intracellular production of hydrogen peroxide by leucocyte subpopulations (P=0.027 [neutrophils], P=0.091 [monocytes]) and in the plasma elastase concentration (P=0.05). There was also a trend to increasing plasma concentration of vWF (P=0.0562), which was measured as a marker of endothelial damage. Ischaemia-reperfusion results in increased adhesiveness, entrapment and activation of leucocytes. Even following a mild ischaemic insult, this leucocyte response was followed immediately by evidence of endothelial damage. These results may have important implications for understanding the development of chronic diseases that involve mild ischaemic episodes.

Thirkill CE. Immune-mediated paraneoplasia. Br J Biomed Sci 2006; 63: 185-95.
Cancers induce a loss of homeostasis through the uncontrolled production and release of a variety of biologically active cellular products, natural compounds produced in unnatural quantities within abnormal anatomical locations. Often, there is an immune response to which the cancerous growth may succumb, or have the characteristics required to survive. If, during its proliferation, the cancer should coincidentally express a potent autoantigen then the organ in which that antigen is normally located may be damaged by the resultant immune response. Paradoxically, this aberrant immunological activity rarely has any appreciable inhibitory effects on the causal cancer. This inconsistency may result from the cancer's ability to block the host's immunological activity, while the affected organ situated elsewhere has no such capacity. Some predisposition, such as trauma to the affected organ, may prove a prerequisite that provides access to hitherto immunologically privileged sites. The effects of the subsequent loss of tolerance are often the first indication of a health problem, prompting the patient to seek medical help. Immune-mediated paraneoplasia is identified by antibody activity with any of a small but growing collection of organ-specific antigens demonstrated to have a distinct disease association and an apparent involvement in autoimmunity. Examples of the most common are described as introduction to this unusual collection of autoimmune diseases, for which in some cases the cause is known, and these may provide insight into the cause of those that are not.

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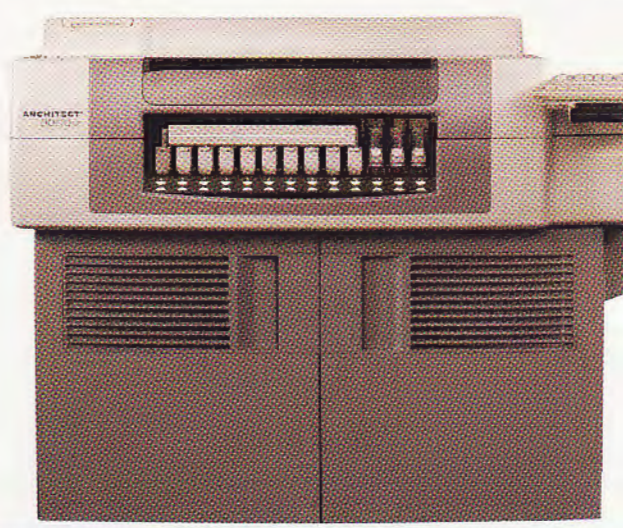

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