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Original Articles

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DIRECTIONS FOR CONTRIBUTORS

From Vol. 36 No.1 all papers published will be in the form known as "Vancouver Style" or Uniform Requirements for Manuscripts submitted to Biomedical Journals. Full details may be found in the New Zealand Journal of Medical Laboratory Science, 1991; Vol. 45, No. 4, page 108 to 111 or from the Editor.

Intending contributors should submit their material to the Editor, Rob Siebers, Dept. of Medicine, Wellington School of Medicine, PO Box 7343, Wellington South. Acceptance is at the discretion of the Editor, and no undertaking is given that any article will be published in a particular issue. The copy deadline for each issue is the first of the month prior to the month of publication.

ADVERTISER INQUIRIES

Inquiries regarding advertising rates and material for advertising should be addressed to the Advertising Manager, Trish Reilly, M.N.Z.I.M.L.S., 48 Towai St, St Heliers, Auckland 5, Phone 575 5057

DATES OF PUBLICATION

The months of publication for 1994 are March, May, August and November.

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CURRENT COMMENT

Shirley Gainsford
Valley Diagnostic Laboratory

History

In 1989 the Council of the NZIMLS voted to set up advisory groups in each Medical Laboratory Science discipline following a proposal from Dennis Reilly, such groups to be named Special Interest Groups. As the industrial activities of the NZIMLS had been devolved to the Medical Laboratory Industrial Workers Union the Institute could concentrate on one of its main objectives which is to promote professional excellence through education. This would include the continuing education of its members plus being involved in the development of degree courses in Medical Laboratory Science and the subsequent monitoring of such courses.

The Council does not contain representatives of each laboratory discipline and could not hope to accomplish the above without input from other Institute members, hence the decision to invite technologists to set up these advisory groups. As there were already successful seminars in Haematology and Transfusion Science being held, the Auckland Haematology charge technologists and David Wilson from the Palmerston North Blood Transfusion Service were asked to form the first SIGs. Alison Buchanan from Clinical Biochemistry Auckland Hospital, Gillian McLeay from the Laboratory Training Centre in Auckland and Shirley Gainsford from Valley Diagnostic Laboratory were asked to set up SIGs in their respective disciplines and an inaugural meeting of SIG convenors was held at Dennis and Trish Reilly's home in 1990. The following objectives were agreed to by the SIG convenors:

- *to advise Council on all matters pertaining to their discipline*
- *to nominate examiners and revise examination syllabi*
- *to organise continuing education programmes within the resources of the NZIMLS*
- *to liaise with the Annual Scientific Meeting committee in the organisation of the programme*
- *to approach people to publish in the NZIMLS journal*

Since then a Cytology SIG and Histology SIG have been formed with Carol Green and Maree Jackson respectively as convenors.

How Do They Operate?

Each SIG has been responsible for forming its own committee with most groups having countrywide representation. Some SIGs have formed local branches which meet regularly and organise local seminars. The SIGs are responsible to the Council of the NZIMLS through the convenor of the Education committee. The SIG convenors meet with Council representatives annually to discuss common issues and forward recommendations to the full Council. Money is available from the NZIMLS to fund SIG activities and SIGs are required to produce an annual budget and programme for approval by the NZIMLS Council. The Special Interest Group liftout has become a regular feature in the NZIMLS journal with the Transfusion Science Special Interest Group (TSSIG) and the Immunology Special Interest Group (ISIG) being particularly productive with their news, abstracts and book reviews.

What Do They Do?

However the most obvious activities of the SIGs have been the seminars and workshops which they have organised. These have been very diverse, ranging from the very structured Haematology Special Interest Group (HSIG) seminars held in Auckland on an annual basis to the informal N.I.C.E. weekend of TSSIG at Wairakei and ISIG's weekend at Taupo. For example the following seminars were held in 1993.

Clinical Biochemistry — "Excel" workshop and "Immunoassay" seminar.
Transfusion Science — N.I.C.E. weekend.
Haematology — "Coagulation" seminar and "Blood Films Revisited" seminar.
Microbiology — Antimicrobial symposium.
Immunology — North Island Seminar at Taupo and DNA antibody workshop.

As well as the above the Biochemistry Special Interest Group (BSIG) runs a journal club as does The Microbiology Special Interest Group (MSIG). MSIG for some years produced a study guide for Specialist level examination candidates. TSSIG obtains continuing education programmes on audio tapes which it makes available to members and ISIG produces a regular newsletter. SIGs have also formed ties with other scientific organisations such as the Australasian Association of Clinical Biochemists which BSIG has held combined seminars with and the N.Z. Microbiological Society which MSIG combined with in 1991 to organise a seminar on "Nosocomially Acquired Infections". The SIGs have also been involved in helping organise workshops and papers for the NZIMLS Annual Scientific Meeting when asked to by the organising committees. SIG representatives have been involved in the development of the BMLSc programmes and will hopefully be involved in monitoring the courses.

Bricks and Bouquets

There have been problems as there would be with any new groups appearing in an organisation. These have been mainly to do with the timing and sponsorship of continuing education programmes and communication between the SIGs and the Council of the NZIMLS. However, an annual meeting of SIG convenors and Council representatives has improved communication and meant that issues have been talked through and consensus reached. In 1993 the SIGs worked together to produce a "common" section for QTA syllabi. This involved many letters between Council and the SIGs and two meetings but

everyone worked together and a new syllabus for most of the disciplines has been accomplished.

In the last five years the SIGs have made a very important contribution to the affairs of the NZIMLS. Most importantly they are providing our continuing education programmes and providing opportunity for professional development. As technologists and laboratory assistants participate in these programmes they have become more enthusiastic about their profession. Coordination of examiners and moderators for NZIMLS exams has improved since the SIGs have nominated people. There are no active NZIMLS branches in NZ now and the SIGs have provided a means of communication between the Council of the NZIMLS and Institute members through laboratory disciplines, whilst regional representatives still maintain the local connection.

Those people who have been committee members of the SIGs are to be congratulated for all the time and effort they have put into the enhancement of the education of our profession. In particular special thanks must go to the SIG convenors whose enthusiasm and initiative have inspired their committees. At the time of writing the SIG convenors are the original convenors although some have signalled their wish to retire. We must not let their efforts be in vain. The SIGs need your support and your input. You can participate in SIG Continuing Education programmes, comment on issues involving your discipline, become a SIG committee member.

With your support the SIG's activities will flourish and they will remain an important part of the NZIMLS for the next five years.

LETTER TO THE EDITOR

Experience with the Diamed ID Micro typing system.

Dear Sir,

I wish to write to you concerning my two year experience with the DiaMed ID MICRO TYPING SYSTEM in Saudi Arabia. Between 1991 and 1993 I was fortunate enough to work with, and help develop the gel test in a large military reference laboratory. The gel test was used in all areas of the blood bank including blood group typing, antibody screening, antibody investigation and compatibility testing.

The system uses a modified sephadex gel which is either neutral or impregnated with antisera or coombs reagent depending on the required test procedure and encased in a six well plastic microtube card of similar size to a credit card. Red cells, or a mixture of cells and serum are dispensed into the microtubes. The cells are always added prior to the addition of serum so that the serum does not come into direct contact with the gel. Incubation is followed by controlled centrifugation. In negative reactions, the red cells pass unimpeded through the gel forming a layer of cells on the bottom of the microtube, while in positive reactions the antigen-antibody complexes are trapped on top of the gel or suspended within it. Mixed field agglutination is clearly different from either positive or negative results. Since serum and free antibody is left behind as the red cells pass through the gel, only cells coated with antibody interacts with the AHG reagent within the gel. Thus the washing of the coombs phase has been omitted.

In using the gel test I noticed several advantages of gel over conventional techniques. The Armed Forces Hospital shared confirmation testing and research with other gel using hospitals around the world. Because of the highly standardised technique, results obtained are uniform independant of the operator. The results obtained are stable for several days or could be photocopied for patient records or interest. I found this to be of use when "out of hours" work was performed by staff not engaged in full-time transfusion science. Its introduction into New Zealand may allow trainees or assistants to work on cross-matching bays since results could be confirmed by a supervisor with confidence before the units are released.

Other advantages include no rouleaux formation in the enzyme phase, no cell washing required, small samples, no microscopic confirmation of results needed, Rh(Du)Positive results can be interpreted directly in the card without further testing and reagents are predispensed with a long shelf-life. High risk samples are tested by covering the reaction chambers of the card after dispensing the cells and serum. No further contact with the infectious serum is required, nor is there any risk of aerosol formation ensuring safety to the user. No glassware is involved. The gel technique was also found by our consultant haematologists to be useful in providing meaningful information concerning immunobiological status in post bone marrow transplant recipients since peripheral recovery is able to be measured quantitatively.

Another advantage was savings in monetary terms. As a result of the gel technique, two Scientific Officers were not replaced and subsequent savings in salary offset the higher costs associated with the technique. There was also an increase in the flexibility of remaining staff.

But as with all new products there were problems encountered with the gel system, most of them peculiar to Saudi Arabia. As a result of extremes in temperature, (up to 60°C), I found the cards began to dry out. This caused the gel to crack trapping red cells giving the appearance of weak positive reactions. The problem was overcome by improving the delivery system between hospital stores and the laboratory and visual examination for the presence of buffer above the gel prior to use. Another problem encountered was the large number (7%) of non-specific enzyme autoantibodies detected when batches of antibody screens were performed. Screening cards are provided in racks of 12, and at any one time up to 60 screens were put up. The result of this being that cards received up to 10 minutes incubation at room temperature in addition to the 10 minutes at 37°C the method required. By changing our methodology so that only two racks, or 24 antibody screens were put up at any one time, the problem was significantly reduced. Communications with DiaMed also showed our incidence rate to be higher than that found by other users and is being investigated.

Unique to the DiaMed system has been the appearance of what has been termed as "mimicking antibodies". These "antibodies" although uncommon, occur particularly in the enzyme phase and appear clear-cut. On typing the patient for the corresponding antigen however, the validity of the antibody is questionable. For example, an anti-E detected in a patient who is E antigen positive. The significance of these antibodies is subject to investigation around the world. Laboratory policy concerning these "antibodies" in compatibility testing varies, but in the majority they are ignored.

I was impressed with the DiaMed system in terms of its ease of use, sensitivity and future applications envisaged by the company. Its cost effectiveness, efficiency and resultant increase in staff flexibility makes it a valuable asset in today,s economic times.

Stephen Wisnewski-Smith, *MNZIMLS, MBBTS, Dip Bus Studies.*
Staff technologist,
Waikato Regional Blood Centre,
Hamilton.

EDITORIAL

Our journal originally started life as the Journal of the New Zealand Association of Bacteriologist, the fore runner of what is now our Institute of Medical Laboratory Science.

The birth of the Journal in 1946 was the brainchild of Douglas Whillans from Auckland who not only edited, but also printed and published the journal. Subsequently the editorship was taken over by Mr A Murphy from 1951-1957 after which it moved to Christchurch under editorship of Mr J Cannon, Ms L Evans and Mr G Rose. From 1962 to 1983 Dunedin assumed responsibility for the journal under subsequent editorships of Mr J Case, Mr RD Allan and Mr H Mathews. In 1988 responsibility for the journal shifted back to Auckland first under the editorship of Mr D Dixon-McIvor and finally to Ms M Gillies. In 1993 Maree Gillies indicated to the NZIMLS Council that she wished to relinquish as editor of the journal, subsequent to which I was approached to take over this role as from May, 1994 based in Wellington.

It is with some trepidation that I take on this role. Looking back through past issues of the journal I cannot fail to notice the pleas and urgings of previous editors for members of the institute to supply suitable material for publication, be it original articles, technical notes, letters to the editor or news and views. At each Annual Scientific Meeting of the Institute, after presenting the journal report, the editor makes another plea for papers read at conference to be presented for publication, often with limited success. Previous editors have started innovations such as invited reviews and education series to boost the contents of the journal. Ultimately the journal will depend on the active support of all members.

With massive changes in the health scene, it is understandable that not many papers are forthcoming at present for publication in the journal. However, perusing the previous few years of the journal, I cannot fail but notice that many of our members are actively producing papers which are being presented at the various Special Interest Group meetings around the country. If one has gone to the trouble of setting up a scientific project or followed an interesting case and presented it to their peers at SIG meetings, one is nearly there for the next logical step, namely writing it up for a scientific journal, preferably our journal. Help is available from either the editor, or the editorial board if you have some problems in writing your paper. Remember the journal belongs to the members of the Institute, but we need your contributions to sustain it.

With this issue of the journal you will notice some changes, the main one being the cover. It is intended to have a different cover for each of the 4 issues during the year. Other changes that have been made are in the style of presentation of the papers SIG reports and the Pacific Way column. I would welcome comments regarding the journal as letters to the Editor on what you think of the new style, contents and suggestions for further improvement of the journal. I look forward to my term as Editor of the journal and hope you as members will support me by sending in your papers, technical briefs, reviews, case studies and letters to the editor. Last, but not least, I would like to thank my predecessor Maree Gillies for her help and guidance in the transition of editorship of the journal, and for her tireless efforts in keeping the journal as a going concern during the last five years.

R.S.

Health Information Privacy Code

A code of practice is now in existence which provides specific guidance for agencies in the Health Sector on how they should comply with the Privacy Act. Much of the code does not have any direct relevance on Medical Laboratories, however there are some sections which should be brought to the attention of Laboratory staff.

Each C.H.E. will have an appointed Privacy Officer and any further enquiries in regard to the Privacy Act or the code of practice should be directed to that person. The following guidelines were those submitted to the Council.

Guidelines for Laboratory Staff

Visitors to Laboratory

Visitors to the Laboratory who are not C.H.E. employees, e.g. students, company personnel etc, should be told **before** entering the area of the Laboratory that is not accessible to the public, that details of any patient they may happen to notice during the course of their visit are confidential and must not be relayed to any other party.

Patient Health Information in Laboratory

Laboratory Staff must at all times ensure that identifiable patient information is not left in a position where it may be sighted by people for whom the information was not intended. For example, request forms containing patient clinical details must not be left where other patients can read them.

Disclosure of Test Results to Patients

Any request by a patient for results of any laboratory test results must be referred to the original requestor of the test/s, who is generally best able to determine if disclosure of result/s is in the patient's best interests.

Exceptions are:

(a) Some patients, e.g. renal transplant patients, when the Lab has had definite prior instruction that specific results may be given out, and:

(b) Paying customers of The Lab have access to the results of tests which they have purchased.

FAX Reporting

Where results are to be faxed, the receiving fax number must be programmed into the fax machine or computer permanently and be verified as being correct before results are transmitted. The preprogrammed and verified number must always be used. to prevent the possibility of dialling manually an incorrect number.

The base of the fax sheet should contain wording to the effect that the information is confidential. Below is an example.

Caution: The information in this facsimile is legally privileged and confidential. If the reader of this message is not the intended recipient you are hereby notified that any use, dissemination, distribution or reproduction of this message is prohibited. If you have received this message in error, please notify us immediately. Thank you.

NZIMLS 49th ANNUAL SCIENTIFIC MEETING

49th Annual Scientific Meeting
August 31— September 2 1994, Hamilton

INVITATION TO ATTEND

It is my pleasure to invite you to attend to 49th Annual Scientific meeting of the NZIMLS in Hamilton August 31 to September 2. We have an enthusiastic committee putting together a very full scientific and social programme which we are sure you will enjoy. We look forward to seeing you there to help us make this conference a success.
SYD SHEPHERD, CONFERENCE CONVENER.

VENUE

This year's conference is being held at the WAIKATO CONVENTION CENTRE at the CLAUDELANDS SHOWGROUNDS, just one KILOMETRE from the centre of HAMILTON

PRIZE

This year there will be a book prize awarded for the best novice paper presented at this meeting

CONFERENCE SECRETARIAT
Ann Livingston/Marion Diplock
P.O. Box 1504, Hamilton, New Zealand
Ph/Fax 07 838 0521

SCIENTIFIC COMMITTEE
Syd Shepherd
P.O. Box 52, Hamilton, New Zealand
Ph 07 834 0791, Fax 07 834 0758

NZIMLS 49th ANNUAL SCIENTIFIC MEETING
31 AUGUST - 2 SEPTEMBER 1994, HAMILTON

REGISTRATION

IMPORTANT

1. Please TYPE or use BLOCK CAPITALS in ballpoint pen.
2. Cheques or bank drafts are to be made payable to NZIMLS CONFERENCE.
3. Please forward this registration form together with payment to:
   NZIMLS Conference Secretariat
   PO Box 1504
   Hamilton
   New Zealand
4. Any queries contact the Conference Secretariat:
   Ann Livingston/Marion Diplock
   Ph/Fax 07 838 0521
5. Retain a duplicate for your own records.

REGISTRANT

Surname .....
Title (Prof/Dr/Mr/Mrs/Ms) .....
First Name (for name badge) .....
Postal Address .....
.....
.....
Telephone ..... Fax .....
Organisation .....

ACCOMPANYING PERSON

Surname .....
Title (Prof/Dr/Mr/Mrs/Ms) .....
First Name (for name badge) .....

MOTEL ACCOMMODATION

Room type: Single ☐ Double Twin
Arrival Date: / /94 Departure Date: / /94
Preferred Accommodation
Please indicate first, second & third choice

- Boundary Court Motor Inn
- Chloe's Motor Inn
- Hilda Ross House
- Bavaria Motel
- Southern Cross Motor Inn
- Mill Lodge Motor Inn

MOTEL DEPOSIT

(Equal to first nights accommodation) $_____

Accommodation Not Required ☐

Special Accommodation Requirements
☐ Non-smoking ☐ Smoking ☐ Share

.....
(Dietary, wheelchair, adjacent rooms, share person, etc)
Tariffs quoted are current, GST inclusive and may be subject to change
Private Accommodation: If staying privately please advise:
Address: .....
..... Telephone .....

Flight Details

Arrival Flight # ..... Departure Flight # .....
Arrival Date: / /94 Departure Date: / /94
Flt Arrival time ..... am/pm Departure time ..... am/pm

CONCURRENT FORUMS - THURSDAY & FRIDAY

Please tick box indicating your major area of interest

- ☐ Biochemistry
- ☐ Haematology
- ☐ Microbiology
- ☐ Transfusion Medicine
- ☐ Immunology
- ☐ Histology/Cytology
- ☐ Virology

REGISTRATION FEES

	Prior to 24 July 94	After 24 July 94	Total
Full registrant	$195.00	$245.00	$_____
Day registration Wed ☐ Thur ☐ Fri	$100.00 per day		$_____
REGISTRATION SUBTOTAL			$_____

SOCIAL FUNCTIONS

Welcome Function (extra tickets) @$17.00 $_____
Conference Dinner (optional) ☐ @$50.00 $_____
SOCIAL FUNCTION SUBTOTAL $_____

WORKSHOPS - TUESDAY (Indicate your preference)

Transfusion Science ☐ @$30.00 $_____
Moderators & Examiners ☐ $ No charge
Haematology ☐ @$30.00 $_____
Microbiology ☐ @$30.00 $_____
Biochemistry Seminar ☐ $ No charge

WORKSHOPS TUESDAY SUBTOTAL $_____

Workshops - Tuesday subtotal $_____
Social Functions subtotal $_____
Registration subtotal $_____
Motel deposit $_____
TOTAL TO PAY $_____

☐ Cheque enclosed All prices include GST

TAX INVOICE GST # 13878595

WORKSHOPS & SEMINARS Tuesday 30th August

Workshop/Seminar	*Venue*	*Start Time*	*Cost*
*HAEMATOLOGY: Emergency Haematology	Seminar Room, Anglesea Clinic	9.00am	$30.00
*BIOCHEMISTRY: National Quality Assurance Meeting. The AACB Roman lecture is to be delivered by Dr J.Westgaard	Waikato Convention Centre	9.00am	No charge
MICROBIOLOGY: Seminal Fluid Analysis	Bryant Training Centre, Waikato Hospital	10.00am	$30.00
TRANSFUSION SCIENCE: New technology	Waikato Convention Centre	1.00pm	$30.00
EXAMINERS AND MODERATORS	Waikato Convention Centre	1.30pm	No charge

*Seminar

TENTATIVE PROGRAMME Each day's programme starts at 9.00 am

Wednesday 31st August	**Opening Ceremony : Mayor of Hamilton** Changing Health Environment Forum 4 th year Degree Course: Brickbats and Bouquets NZIMLS Annual General Meeting		
Thursday 1st September	**Concurrent Forums/Proffered Papers**		
	Biochemistry	• Inborn errors of metabolism	W. Carey
		• National Testing Centre	D. Webster
		• Debate on Near Patient Testing	D. Mikkelson
	Microbiology	• Laboratory role in infection control	J.Mitchell/F.Morgan
		• Public Health from lab to community	Dr D. Hood
		• History & Future of CAPD	Dr M. Wallace
		• Clearance of a bacterial challenge to the peritoneal cavity	G. Findon
		• Microbiology around the world	
		• Tb in the Waikato	P. Neilson
	Haematology	• Paediatric Haematology & Coag	Prof M. Andrew
		• RBC discriminate function	R. Anderson
	Transfusion Medicine	• A.B.M.T. in N.Z	Dr H. Pullon
		• Yersinia in Blood Transfusion	L. Milligan
	Histology/Cytology	• Cervical Neoplasma	J. Tapp
	Virology	• Rapid Diagnostic Testing	
		• Effect of Hep B & D variants	Dr E. Gowans
		• Hep B variants in chronic hepatitis	Dr B. Schroeder
		• Hep B & C vaccine research	Dr E. Gowans
		• HSV in pregnancy	R. Jenkins
Friday 2nd September	**Concurrent Forums/Proffered papers**		
	Immunology	• LCR	Abbott Diagnostics
		• Clinical Aspects of ENA	Dr A. Doube
		• Paternity Testing	P. Stapelton
	Virology/Transfusion	• Hepatitis C in Donors	Dr E. Gowans
	Virology	• Anomolies in Hepatitis serology	Dr E. Gowans
		• VIDAS experience	R. Jenkins
		• CMV/HCV PCR	L. Jennings
	Microbiology	• Rationalising of Testing	
		• Eastern B.O.P. Gastrointestinal project	J. Wright
	Haematology	• Role of cell markers in the diagnosis of lymphoproliferative disorders	M. Thomson et al
	Biochemistry	• AACB Education course	

ACCOMMODATION

Accommodation has been reserved at the following motels for the duration of the conference. A specially negotiated accommodation rate has been secured for conference participants.

Motels	Distance	Room tariff per night	
BOUNDARY COURT MOTOR INN	1 Kilometre	$ 67.50 Single	$73 Twin/Double
HILDA ROSS HOUSE, WAIKATO HOSPITAL	2.5 Kilometre	$45 Single/Twin	
CHLOE'S MOTOR INN	1.8 Kilometre	$95 Single	$105 Twin/Double
BAVARIA MOTEL	2.0 Kilometre	$57 Single	$69 Twin/Double
SOUTHERN CROSS MOTOR INN	2.0 Kilometre	$75 Single	$92 Twin/Double
MILL LODGE MOTOR INN	1.5 Kilometre	$79 Single	$85 Twin/Double

Other recommended accommodation is available from :-

The GROSVENOR MOTOR INN	2.0 Kilometre	$130 Studio unit	

Please Note:
Reservations for motel accommodation must be secured by payment of a deposit equal to the cost of the first night's accommodation. Should attendees travelling on their own wish to share a twin room, they must arrange for a companion to register and both must cross reference other names under Special Accommodation Requirements.

AIR NEW ZEALAND DOMESTIC TRAVEL

When booking air travel please ask for Super thrifty or Thrifty fare. If these are not available, please quote DOM AUTH 2575 / 4 to your travel agent for a 25% discount. This discount is available on Air New Zealand National/Link and Mt Cook Services.

ARRIVAL & DEPARTURE AT HAMILTON AIRPORT

Hamilton Airport is located approximately 15 minutes from the city centre. The Airport Shuttle bus will meet each flight and transport you to your accommodation. The cost of this service is $ 7.00- $9.00

SOCIAL PROGRAMME

WELCOME FUNCTION

This function is an extension of the Registration and the formal opening of the Trades exhibition. Liquid refreshments and finger food will be served. The cost of participating in this function is included in the registration for Full Registrants. Additional tickets are available through the registration form.

Venue Waikato Convention Centre
Time 7.00pm Cost
Extra tickets: $17

WEDNESDAY EVENING

Happy Hour: - From 5.00 to 6.00pm The bar will be open and drinks and finger food will be available. Time to relax and enjoy yourself at a night of exploring HAMILTON **"Where its happening"**

CONFERENCE DINNER

This evening function is a buffet dinner to be held out at Vilagrads winery, established in the 1900's Enjoy a superb meal including a spit roast and dance the night away to the great sounds of a local band. Cost $50 per person.

DAILY TRANSPORT

A coach shuttle service will be supplied to and from the motels as listed in the accommodation section, to the conference venue, each morning as well as to the Welcome function and Conference dinner. The departure time will be half an hour prior to each commencement time.

REGISTRATION ON ARRIVAL

Registration will commence at 6.30pm on Tuesday August 30 at the Walikato Convention centre at the Welcome Function and will continue to 9.00pm. The Welcome function will commence at this venue at 7.00pm and will continue to 9.00pm. The registration desk will open each day at 7.30am and remain open for the duration of the meeting.

REGISTRATION FEES

Full Registration $195.00
This registration fee includes the Welcome function, morning and afternoon teas, lunches, all technical sessions, conference handbook and satchel.
Day registration $100.00 This registration fee includes sessions on any one day, morning and afternoon teas, lunch, conference handbook and satchel.

LATE REGISTRATION FEES

All registration fees received after 24th July will incur a late penalty fee of $50 per registration.

CANCELLATION FEES

In the event of cancellation a refund of fees will be made as follows:

Before 7th August	50% refund
After 7th August	no refund

REGISTRATION CONFIRMATIONS

A registration confirmation letter will be forwarded to you when your registration has been processed. This letter of confirmation, is to be retained and presented at the Conference Registration Desk in order to receive your Conference Programme, name badge and satchel. Details on the location of the Registration Desk will be included in the letter of confirmation which will also serve as a GST Tax Receipt.

TRADES EXHIBITION

An extensive trades exhibition will be situated on the ground floor of the Waikato Convention Centre. Morning and afternoon teas and lunches will be served in this area.

HAMILTON CLIMATE

Hamilton in August can be very, very, very, very foggy and wet. Bring three layers of thermal underwear, four raincoats, Gumboots and an inflatable dinghy in case we get rained out. Oh, and be prepared to feel your way around because of thick, persistent fogs!

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

Title	NZIMLS Scientific Meeting Trades Display Award
Donor	NZ Institute of Medical Laboratory Science (Inc.)
Nature	An engraved plaque will be presented annually to the firm which has the most outstanding display in the trades display area, together with two pages of free advertising in the NZIMLS Journal. (Copy to be provided by the winning firm). Preparation costs to be met by winner.
Eligibility	All firms or companies who have a display stand in the trades display area of the Annual NZIMLS Scientific Meeting.
Judging	Judges of this award shall be the Trades Display Convenor and the Awards Convenor. The winner will be announced at the end of the first session of the Scientific Meeting.

Waste Management Practices: A Survey of New Zealand Medical Laboratories

Murray Carter, *MNZIMLS, DipBusSt.*

Taranaki Base Hospital, New Plymouth

Abstract

The aim of this survey was to determine the type and quantities of waste produced by New Zealand medical laboratories, and how this waste was disposed of by the laboratories.

A questionnaire was distributed to each public hospital and community medical laboratory in New Zealand. The first section asked for general information relating to predisposal separation of waste, labelling, special precautions, details of incineration and steam sterilisation, and who was assigned responsibility for removing waste from the laboratory. The second section requested specific details of the types of waste generated, the quantities produced, predisposal decontamination and sterilisation methods, and the method of disposal.

Replies were received from 44 of 56 laboratories. The main findings of the survey were that 53% had no documented waste management system in place, although many of these laboratories were in fact managing their waste in an effective manner. Ninety five per cent of laboratories sterilised all biological and infectious wastes before disposal. Recycling was carried out by 57% of laboratories for non-biological and non-infectious wastes. However, it was of concern to note the high number of laboratories disposing of chemicals, often in substantial volumes, into the drains. Formalin, xylol and alcohol were disposed down the sink by 13, 10 and 28 laboratories respectively.

The results of this survey indicate a need for a number of clinical laboratories in New Zealand to examine the ways in which they handle the disposal of waste, and to implement management systems which will ensure the safety of staff and protection of the environment. Many laboratories with informal systems use acceptable methods, but because of the lack of documentation of methods run a real risk of staff using inappropriate methods. One area of particular concern identified was the large scale dumping of chemical products into the drainage system. This can no longer be regarded as an acceptable method of disposal. Laboratories need to examine alternatives such as recycling or the use of commercial waste management companies.

Keywords:

Laboratory waste products, waste management, waste disposal.

Introduction

The disposal of laboratory waste in such a way that it offers no health hazard — either to those who handle it or to the community at large — and at the same time does not pollute the environment is a subject that requires serious consideration.

Certainly, since the early 1980s there has been a growing awareness among those who work in medical laboratories that they have a primary responsibility to ensure all waste generated in the laboratory is managed in a safe and environmentally acceptable manner. This has been driven to some extent by legislative changes which make it imperative that medical laboratories adhere to high standards for their waste management. Two Acts in particular, the Resource Management Act 1991 and the Health and Safety in Employment Act 1992, place considerable responsibility on organisations and their managements to successfully manage their waste.

The Resource Management Act relates to the protection of the environment. Its purpose is *"to promote the sustainable management of natural and physical resources"* This is further explained as *"managing the use, development and protection of natural and physical resources in a way, or at a rate . . . while sustaining the potential of natural and physical resources . . . to meet the reasonably foreseeable needs of future generations; and . . . avoiding . . . any adverse effects of activities on the environment".*

In achieving this purpose, everyone exercising functions and powers under the Act is required to have regard to kaitiakitanga, the efficient use and development of physical resources, and the finite characteristics of natural and physical resources, amongst other matters. The principle of kaitiakitanga, or stewardship or guardianship, invokes a responsibility upon each generation to pass on to the next, the natural environment in a condition as good or better than in which it was received. It means that no generation should act selfishly or wantonly in consuming resources or otherwise leaving them spoiled or degraded.[1]

The Government has agreed that New Zealand's waste management policy should be to encourage the implementation of an internationally recognised hierarchy within waste management strategy, of reduction, reuse, recycling, resource recovery, and residential management. It is intended that the hierarchy should be acknowledged in the ordering of priorities and of allocation of resources, as reflecting those elements within waste management that will be most effective and efficient. It is recognised that adoption of the hierarchy implies a significant re-ordering of effort and financial commitments for most parties currently involved in waste management.[2] The effective and environmentally sound control of wastes once they are produced is often expensive and technically difficult. To reduce the work involved in managing wastes by ensuring that as little as possible is produced in the first place is sensible and feasible. Sustainable resource management demands that, not only should the disposal of waste residues be carried out in an environmentally and technically sound manner, but that wherever practicable, materials available in wastes that could be reused or recovered should be utilised to reduce demand for extraction of raw materials. Most of all, it demands that effort should be put into avoiding the generation of waste in the first place.

The Health and Safety in Employment Act 1992 has as its focus the prevention of harm arising out of work activities. It puts the primary responsibility on the employer, who has a duty to provide a safe and healthy work environment.

Medical laboratories contain large numbers of hazards, either through the processes carried out, the equipment utilised, the products and reagents used, or the nature of the material or specimens being tested. Consequently the waste generated is often hazardous and poses significant risks to those who have to remove or dispose of it.

Under the Health and Safety Act it is the duty of management to ensure all such hazards in the workplace are systematically identified, and where possible eliminated or isolated. Where the hazard cannot be eliminated or isolated, all practicable steps must be taken to minimise the hazard and protect the staff. There are a number of ways in which this can be achieved. The first and most important is to implement a

documented system of managing the hazards. Written procedures for working with the hazards should include information on the nature of the hazard, what to do in an emergency, and what safety clothing and equipment should be used. In conjunction with such written procedures there is a need to ensure all staff receive adequate training in safe work procedures.

The purpose of this survey was to determine how well New Zealand medical laboratories are managing their wastes, and to seek information as to whether formal waste management systems are being used.

Methods

A questionnaire was constructed, consisting of two sections. The first section asked for general information relating to predisposal separation of waste, labelling, special precautions, details of incineration and steam sterilisation, and who was assigned responsibility for removing waste from the laboratory. The second section requested specific details of the types of waste generated, the quantities produced, predisposal decontamination and sterilisation method, and the method of disposal.

The questionnaire was sent to the manager of each public hospital laboratory and community (private) medical laboratory in New Zealand. Questionnaire responses received within one month of posting out were analysed.

Results

The questionnaire was sent to 56 laboratories, 37 (66.1%) to public hospitals and 19 (33.9%) to community laboratories. Replies were received from 44 (78.6%) of the laboratories. The response rate was slightly higher from the hospital laboratories. 30 replies (81.1%), than from the community laboratories, 14 replies (73.7%).

Table 1 lists the responses obtained from the questions on the disposal of biological and infectious wastes. Forty three of 44 laboratories provided information on disposal of sharps and blood. Of these, 95% used a disposal method which ensured the sterilisation of the waste before terminal disposal. Two laboratories dumped without predisposal sterilisation. However. both stated they had an agreement with the landfill operator that such waste was deep buried under supervision in a designated area of the tip. Timed collections of urine (12/24 hour) which resulted in large volumes of fluid were most often discarded down the sewerage system, or down the sink or drainage system. Only three of eight discarding down the sink or drain pretreated the samples with disinfectant.

The responses to questions on the disposal of non-biological and non-infectious waste are shown in Table 2. A total of 25 laboratories recycle one or more types of this waste. Paper (44%) and drums (48%) are the most likely products to be recycled. Thirteen laboratories used more than one method for disposing of paper waste. Most commonly the division was made on the basis of whether or not the paper contained patient information. If so, the waste was either incinerated or shredded and recycled.

The disposal method for chemical products are shown in Table 3. The most notable finding was the large number of laboratories discarding such products into the drains. Ten laboratories were disposing of Xylol in this way, even though it is a water immiscible product. Substantial volumes of these chemicals were disposed down the sink, with maximum volumes reported as being formalin 5 litres/day, alcohol 20 litres/week, and Xylol 3 litres/week. Only five laboratories reported they disposed of dry chemicals.

Twenty five (57%) laboratories reported they had no documented waste management system in place. Of those responding yes to this question, 15 had a system covering the total laboratory, two reported their system was partially completed, and two reported some sections/departments in their laboratory had a system, but other sections/departments did not.

Predisposal separation of waste was reported by all laboratories. Most commonly the separations were of sharps (100%) and infectious from non-infectious wastes (100%). Incineration of waste was reported by 38 laboratories, half utilising a hospital incinerator and the other half employing a commercial firm to undertake incineration. Fifteen laboratories (39%) had knowledge of the maximum temperature achieved in the incinerator, although one laboratory stated it to be 4,000°C and another >2,000°C. Three laboratories reported the maximum temperature achieved was 700°C or less.

Discussion

One of the important points highlighted by the survey was that the majority of clinical laboratories in New Zealand have no formal documented systems for the management of the waste products they produce. Even where a formal system was in place, it was in some cases either incomplete or only applicable to some, but not all, sections of the laboratory. A number of laboratories did comment however, they were in the process of developing their systems as part of the requirement for Telarc registration.

Collins[3] is quite clear about the importance of managing laboratory waste when he states that with proper management such waste poses few problems in relation to the safety of people and their environment. It is a responsibility of laboratory management to design a system that is both safe and comprehensive. The passing of the Resource Management Act 1991 and the Health and Safety in Employment Act 1992 give added impetus to implementing effective waste management systems which ensure protection of the environment and the safety of people in the workplace.

Many of the laboratories without formal systems were in fact managing their waste in an effective manner. The major problem with informal, undocumented systems is that over time local variations instituted by individual staff members can result in the introduction of a multitude of different procedures for dealing with the same type of waste. It was interesting to note that for the one laboratory where two different staff members returned questionnaires, and which did not have a formal waste management system, substantial differences were reported in the disposal method for similar waste in that laboratory.

In general, biological and infectious wastes were well handled. The majority of laboratories used a disposal system, such as incineration, which ensured destruction of actual or potentially infectious agents that may have been present in the waste, or utilised predisposal sterilisation by autoclaving. Decontamination of infectious waste is of particular importance if the waste contains highly virulent organisms. Incineration is the best way to eliminate the infectious risk in most applications.[4] Both a treatment and a disposal method, it can be used for all types of infectious waste. If incineration is used it is necessary to ensure the incinerator is efficient. Many hospitals in New Zealand have incinerators which are extremely old and very inefficient. Suitable incinerators operate at high temperatures. The waste material should be heated in a primary chamber at not less than 800°C and the gaseous products of combustion then further heated in a secondary chamber at 900°-1000°C to destroy organic and other matter that has escaped the first heating[5] The final effluent is therefore safe and environmentally acceptable. In addition to the temperatures achieved the times that the materials spend in the primary and secondary chambers are critical. Although the majority of laboratories used incineration, less than half were aware of the temperatures achieved. Three incinerators (all in hospitals) did not achieve minimum recommended temperatures and should not have been used. Laboratories using commercial companies appeared to assume a suitable incinerator would be used by the company. It is important for laboratories to ensure all methods used to dispose of waste are suitable even when the disposal is carried out by a third party. A potential disadvantage of incineration is that it results in the destruction of the material and therefore cannot be used for non-disposable items. In such cases steam sterilisation may be suitable.

Table 1. *Disposal Methods — Biological and Infectious Wastes.*

Type of Waste Produced:	Number of Respondents Using Method (% of Respondents)				
	Incineration	Landfill with Pre-Disposal Sterilisation	Landfill without Pre-Disposal Sterilisation	Sewer	Sink/Drain
Sharps	37 (86.0)	4 (9.3)	2 (4.7)	0	0
Blood	27 (62.8)	13 (30.2)	3 (7.0)	0	0
Tissue	21 (80.8)	3 (11.5)	2 (7.7)	0	0
Urine (12/24 hour) collections	6 (17.7)	2 (5.9)	0	18 (52.9)	8* (23.5)
Urine (Random)	20 (51.3)	10 (25.6)	1 (2.6)	8† (20.5)	0
Bacterial Cultures (Solid Media)	25 (62.5)	13 (32.5)	2 (5.0)	0	0
Bacterial Cultures (Liquid Media)	17 (41.5)	9 (21.9)	2 (4.9)	0	13‡ (31.7)
Infectious Waste (Swabs/Faeces/etc.)	29 (69.0)	11 (26.2)	2 (4.8)	0	0

* Three laboratories pre-treat with disinfectant.
† Two laboratories pre-treat with disinfectant.
‡ Media sterilised by autoclaving prior to discarding.

Table 2. *Disposal Methods — Non-Biological and Non-Infectious Wastes.*

Type of Waste Produced:	Number of Respondents Using Method (% of Respondents)			
	Incineration	Landfill	Recycled	Other
Paper*	21 (51.2)	16 (39.0)	18 (43.9)	0
Glass†	13 (39.4)	15 (45.5)	12 (36.4)	0
Plastics‡	20 (51.3)	18 (46.2)	3 (7.7)	0
Drums	0	10 (43.5)	11 (47.8)	2§ (8.7)

* 13 laboratories used more than one method.
† 7 laboratories used more than one method.
‡ 3 laboratories used more than one method.
§ Given to staff to take home.

Chemical disinfection is the most appropriate method for certain liquid wastes. The amount of protein present in the liquid, the effective concentration of the chosen disinfectant, the thoroughness of mixing, and the contact time are all relevant considerations.[6] This survey has revealed that the treatment of waste by chemical disinfection is uncommon, being exclusively used for urine samples.

In the case of chemical products disposal it was of concern to note the large number of laboratories discharging a variety of chemicals into the drainage system, particularly the water immiscible compound xylol. Only water-soluble or miscible substances should be disposed of down the drain so that there is no potential fire hazard. The accumulation of such material in the drainage system can also be hazardous for maintenance personnel. The Resource Management Act specifically prohibits the discharge of contaminants from trades premises unless expressly permitted by a rule of a regional plan, a resource consent, or regulations. It may have been revealing to have asked respondents discharging into drains whether such permission had been gained. In some laboratories large volumes of chemicals were put down the drain. However, if the total volume of water mixed with the chemical waste was large there would be significant dilution factors. This would act to prevent local damage to the drainage system, but does not diminish the potential adverse effect on the environment. The significant use some laboratories made of commercial

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Table 3. *Disposal Methods — Chemical Products.*

Type of Waste Produced:	Number of Respondents Using Method (% of Respondents) Drain	Commercial Waste	Incineration	Landfill	Other
Formalin	13 (52.0)	9 (36.0)	1 (4.0)	2 (8.0)	0
Xylol	10 (37.0)	11 (40.8)	2 (7.4)	2 (7.4)	2* (7.4)
Alcohol	28 (73.7)	7 (18.4)	2 (5.3)	1 (2.6)	0
Other Organic	15 (62.5)	5 (20.8)	3 (12.5)	1 (4.2)	0
Radiosotopes	9 (45.0)	1 (5.0)	9 (45.0)	1 (5.0)	0
Dry Chemicals	0	3 (60.0)	2 (40.0)	0	0

* Staff take for private use

companies to handle chemical wastes was pleasing to note. In my own laboratory such arrangements, and the move to greater recycling of products reflects an increased "ecology consciousness" among the staff.

The results of this survey indicate a need for a number of clinical laboratories in New Zealand to examine the ways in which they handle the disposal of waste, and to implement management systems which will ensure the safety of staff and protection of the environment. Many laboratories with informal systems use acceptable methods, but because of the lack of documentation of methods run a real risk of staff using inappropriate methods. One area of particular concern identified was the large scale dumping of chemical products into the drainage system. This can no longer be regarded as an acceptable method of disposal. Laboratories need to examine alternatives such as recycling or the use of commercial waste management companies.

Laboratory professionals have a responsibility to their community and to the environment to ensure proper waste disposal methods are employed. All managers must be familiar with the regulations, standards and laws that apply to this subject, and develop systems which comply with those requirements. Such systems minimise the risk of prosecution, and also significantly increase the prospects for a successful defence in the event that an unforseen problem occurs. The laboratory manager and staff must design a system that is both safe and comprehensive. The programme must provide for proper collection, segregation, storage, transport, disposal, monitoring, quality control, and record-keeping. Inventories of hazardous material should be held to a minimum, because most hazardous waste begins as discards of hazardous materials. The disposal of hazardous chemicals poses a significant environmental problem because these chemicals are not easily destroyed. Their continued presence in the environment can result in significant damage to the ecology. The manager should define a system that substitutes less hazardous materials whenever and wherever possible.

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Recent Publications by NZIMLS Members

Various medical laboratory scientists around the country have, either as principal author or as co-author, papers published in other local or overseas journals. Quite often these articles have a bearing on the New Zealand scene and are well worth reading. It is the intention to start a new regular column in the journal entitled "Publications by NZIMLS Members".

Please forward your contributions for this new column to the editor giving the title of the paper, names of all authors, journal title, year, volume, issue number, first and last page number, and institution(s) where the work was carried out.

Stability of Urate in Urine

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Presented at the XV International Congress of Clinical Chemistry, November 1993, Melbourne, Australia

Abstract:
The objective of this study was to determine the stability of urate in refrigerated and deep-frozen urine. Urate was determined in refrigerated (4°C for up to 7 days), and deep-frozen (-20°C for up to 4 weeks) urine samples with a colorimetric uricase method.

The main finding of this study was a progressive decline in urate concentrations in refrigerated urine samples, but no decline of urate in deep-frozen urine samples. Additionally we found that urate concentrations in fresh urine samples may be artificially low if the sample is not heat-treated (10 min at 60°C) immediately prior to analysis. We recommend heat-treatment of urine samples prior to urate analysis.

Keywords:
Urate, urine, uricase, stability.

Introduction

The finding of reduced fractional urate excretion in hypertension has highlighted the possible role of renal proximal tubular sodium handling in hypertension[1,2]. Large epidemiological studies may require prolonged storage of urine samples for urate prior to analysis. Urine urate concentration is usually measured enzymatically utilising uricase, which has replaced the phosphotungstate method[3]. In the last decade there has been one published study on the stability of urate in urine utilising the latter methodology[4]. In that study the stability of urate in urine was assessed for only 7 days. Additionally one other study utilising uricase assessed urate stability in 24 hour urine samples at various pH values[5].

This study was undertaken to determine the stability of urate in urine, both refrigerated short-term and deep-frozen long-term, using an enzymatic uricase method.

Methods

Random urine samples were obtained from 12 healthy volunteers. The study was approved by the Wellington Hospital Ethics Committee and all volunteers gave written informed consent. The urine samples were split into 3 aliquots, one of which was immediately analysed for urate. The other 2 aliquots were stored at 4°C and -20°C respectively. Urine samples stored at 4°C were analysed for urate on days 2,3,4 and 7, while urine samples stored at -20°C were analysed after 1,2,3 and 4 weeks of storage.

Urine samples stored at -20°C were heated for 10 minutes at 60°C prior to analysis to redissolve any solid precipitates[6]. For this 1 ml urine samples were pipetted into 12 ml polycarbonate tubes and placed in a solid heating block. Urate was measured with the uricase aminophenazone method of Boehringer Mannheim (Mannheim, Germany) on a BM/Hitachi System 717 random access analyser. Normal and abnormal urine control samples (Lyphochek, Bio-Rad, California, USA) were included in each analytical batch and returned between batch coefficients of variation of 1.34% (mean : 0.69 mmol/L) and 1.81% (mean : 1.19 mmol/L) respectively.

Statistical significance was determined by analysis of variance (ANOVA) and by least-square linear regression analysis. A p value of <0.05 was deemed statistically significant.

Results

The results of the stability of urate in urine for various time periods, both refrigerated and deep-frozen, are summarised in Table 1. There was a progressive decline in urate concentrations in urines stored at 4°C. No significant changes in urate concentrations were apparent in urines stored at -20°C. Urate concentrations were higher in the -20°C stored urine samples compared to urate concentrations in the 4°C stored specimens. The only difference in treatment between the 2 groups, apart from storage conditions, was that urine samples stored at -20°C were heat-treated prior to analysis.

When the urine samples stored at 4°C for 7 days were heated for 10 minutes at 60°C and re-analysed, their urate concentrations increased from a mean value of 2.28 mmol/L (sd : 0.75) to a mean value of 3.45 mmol/L (sd 1.40). This was not significantly different from the heat-treated urine samples stored at -20° for 7 days (mean : 3.45 mmol/L; sd : 1.40). Preliminary studies confirmed that 10 minutes of heat-treatment was adequate to reach stable urate results (unpublished observations).

In a separate study 40 consecutive fresh urine samples received in the laboratory were immediately analysed for urate both prior to and after heat-treatment (10 minutes at 60°C). Seven of the urine samples demonstrated significantly higher urate concentrations after heat treatment (+10% to +165% increase, mean : 54.5%). The remaining 33 samples showed no difference in urate concentrations due to heat-treatment ($r=0.999$, $y=0.015 + 1.005x$).

Table 1
Stability of urine urate

Day	4°C	Week	-20°C
1	2.87 (0.92)	1	3.45 (1.42)*
2	2.55 (0.81)*	2	3.43 (1.44)
3	2.58 (0.82)*	3	3.46 (1.45)
4	2.46 (0.81)*	4	3.48 (1.48)
7	2.28 (0.75)*		

Results are mean (sd) in mmol/L. Samples (n=12) stored at -20°C were heat-treated prior to analysis, while those stored at 4°C were not. *$p<0.05$ by ANOVA compared to day 1

Discussion

The results of this study shows that urate in urine is stable for at least 7 days at 4°C and for at least 4 weeks at -20°C provided all samples are heated for 10 minutes at 60°C. A previous study using the phosphotungstate method found that urine urate was stable for up to 3 days provided the samples were stored frozen or frozen with thymol[4]. Additionally, in that study, urate was unstable in acidified samples for a 24-hour period even when samples were heated for 10 minutes at 60°C in order to bring urate into solution.

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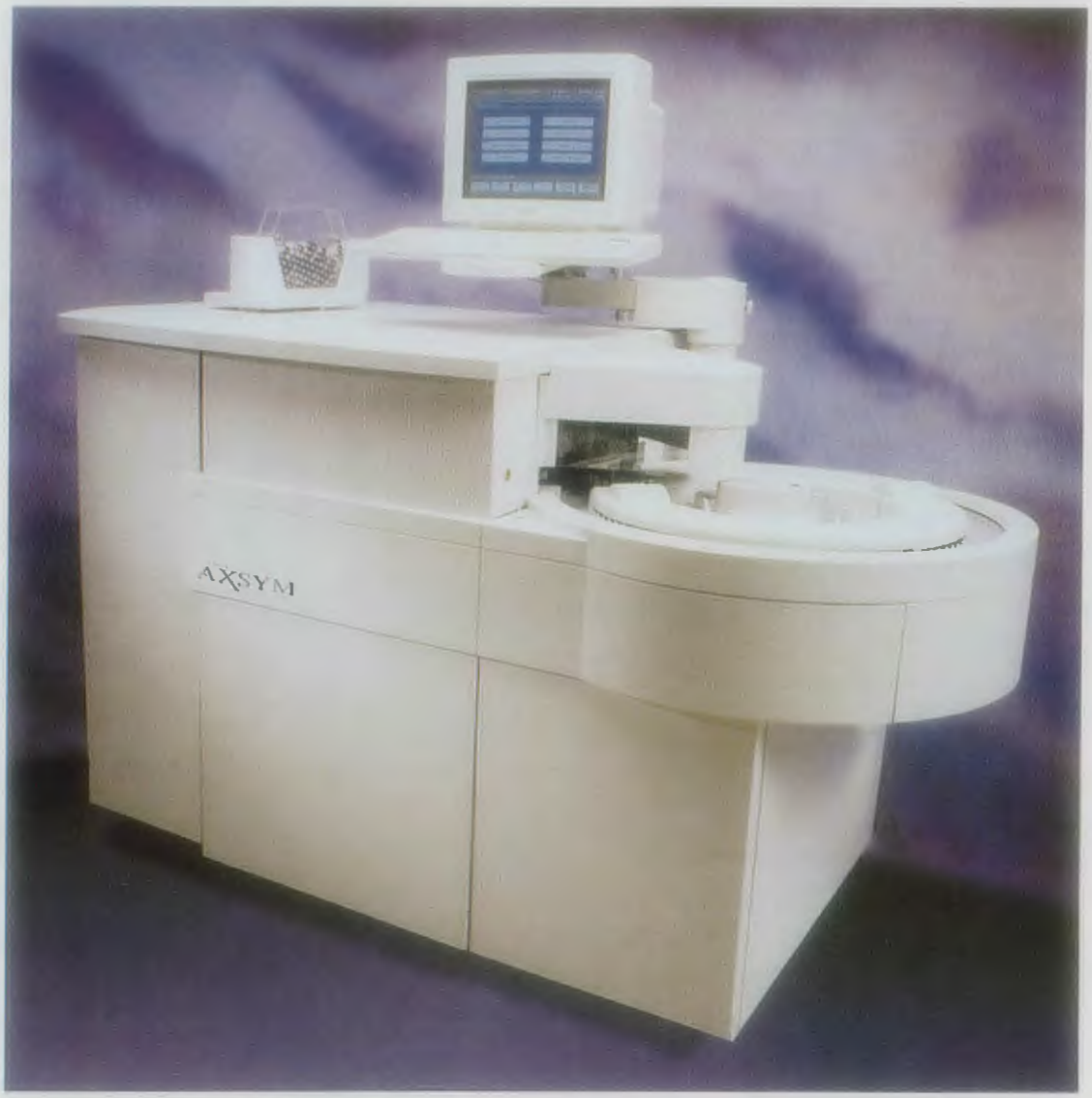

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The significant finding from our study is that even in fresh urine samples without evidence of precipitations of solids, urate concentrations may be artifically lower if the sample is not heat-treated immediately prior to analysis. A previous study found that urine specimens stored for 24 hours had to have alkali added and heat-treated at 56ºC for urate concentrations to be restored to levels found in fresh and untreated (no alkali or heating) samples[5]. Urate in urine exists as predominantly the undissociated acid (urate pKa = 5.75 and fresh urine pH commonly = 6) and also as the monosodium salt. Both forms of urate have different pH solubility profiles, their solubilities are affected differently by different concentrations of Na^+, K^+, NH_4^+ and Mg^{2+}, and monosodium urate can exist in urine in a supersaturable state[7]. Presumably, partial precipitation of urate (not visually observable) can occur in fresh urine samples due to differences in pH and ionic composition. We recommend that all urine samples, whether fresh or stored, be heated for at least 10 minutes at 60ºC immediately prior to urate analysis.

Acknowledgement
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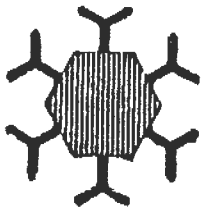

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Coming to the Crossroads, 1994

A 'Siggle' of Seminars

There would have been more to report if the North Island Seminar and the Coulter Users' Flowcytometry meeting had taken place on the weekend of the 12 and 13 March at Lake Taupo as planned. Due to a slight mishap it was transferred to Anzac weekend. By the time you read this edition of the Journal, it will all be over and history will tell whether it was successful, despite (or because of) the change of date to a holiday weekend.

It was a remarkable coincidence that the South Island Seminar, the Microbiology SIG (MSIG) Seminar and the *ISIG* were all to be held over the same weekend originally. We can only guess at this stage that our southern colleagues repeated their successful formula of past years, but we can congratulate MSIG on a splendid day on 12 March with sixty people participating. A further coincidence was that both MSIG and *ISIG* had chosen Lake Taupo for their seminars. It would have been interesting to see what would have transpired as a result; perhaps a sort of mini-conference with people scurrying from one venue to another to gain the best from both worlds.

Formalization heads off 'Ossification'

Which brings me to what I really want to share with members of *ISIG* as well as all the Special Interest Groups. At the end of last year it was decided to formalize the role of the SIGs and make them more accountable to the NZIMLS, of which they are a part of which provides financial backing.

This step has come about at an important time with the SIGs in varying degrees of development and experience; the most well-established (and sophisticated) being those of Haematology and Transfusion Science, followed by Biochemistry, Immunology (representing Virology also), more recently Microbiology and now the newly-formed Cytology and Histology groups. We welcome the latter and wish them every success.

Part of the formalization process was that SIG committees review their appointments on an annual basis and that each committee members undertake a minimum of a 3 year time commitment. Some committee members on a number of the SIG committees are moving into a fourth year or more, and as convenor if *ISIG*, I am one of these.

The purpose of the 3 year time span was to ward off the possiblity of 'ossification' (that was the actual word used in discussions) and be able to recruit fresh ideas and a change of direction if needed.

Cutting the Umbilical Cord

As the 'founding mother' (so to speak) of *ISIG*, I have decided to step down as convenor in August. This is not without some trepidation. Launching 'my baby' into the wide world and wondering whether the person who takes on the task will nurture *ISIG* as I have done, probably shows the degree of ossification which has set in. The fact that I tend to look upon the *Network* as my special property indicates clearly that it is time to go. Naturally I shall still be heavily involved with the Auckland group — they cannot get rid of me that easily!

I am looking to *ISIG* members to not only come up with nominations or volunteers for the convenor, but for any other vacancies (ie. secretary, treasurer and regional representatives) that become available. The committee membership must be finalized in August at the *ISIG* AGM in Hamilton, just prior to the SIG/Council meeting and the 1994

Central Location for National Committees

Despite the idea of having a national committee spread around the country to keep parochialism at bay, this is not practical anymore now that the SIGs have taken on so much of the workload of NZIMLS educational matters. I have found it very helpful to have the advice and support of Mary-Ann White, our Secretary, on hand as well as that of the rest of the Auckland *ISIG* committee, who have acted in *loco parentis* on many occasions. Grateful thanks are also due to our Treasurer, Jude Hodgetts, in splendid isolation 600km away in Wellington.

Therefore, I suggest that the committee of any SIG should be preferably in one centre (or region if distances are small) so that the workload can be shared. This is very important as technologists get busier by the day as staff levels drop and the standards for the quality of services provided continue to climb.

Crunch Time

Just as the SIGs appear to have been put on a sound footing, we have reached a crucial point where many of the people who set them up and have kept them functioning are going to stand down. This will be fine if enthusiastic folk come forward and willing to make a commitment of some personal time to take up the challenge.

The problem is that in some cases the SIGs have not performed entirely as intended (our own group included) and the various committees have struggled to keep their 'ships afloat' with often very little response from the membership at large, apart from occasions such as seminars, workshops and the NZIMLS Annual Scientific Meeting. This has resulted in disillusionment and people may be standing down, not because their 3 year term is up, but because they are too tired to cope with the apathy any longer. This trend could put the SIGs' future in serious jeopardy.

Past, Present and Future

I consider our own group has been one of the more successful. We are not too sophisticated or ambitious in our objectives and activities, we have some keen (if somewhat vociferous) organizers and facilitators, and a network of members (presently 91) linked by the *Network News* which has been an important element in the viability of our SIG (although I regret that the standard of the newsletter has slipped somewhat, due to financial restraints and lack of contributions for publication mainly). The whole question of the newsletter will have to be reviewed if the national committee of *ISIG* is changed radically and moves to another centre.

What I have not achieved in my time as convenor is for the regions (and the smaller centres within them) to take advantage of *ISIG* funding, support and expertise to set up their own sub-groups and organize continuing education programs, workshops and seminars for the people (especially junior staff) in their particular area — the people who could not or would not travel to Auckland, Christchurch, Dunedin, Wellington (or even Taupo) for a seminar or workshop, but would attend some relatively low-key function in their local area. This is where I believe the local reps cou'd have played a key role (although perhaps I have not given them enough incentive or encouragement) to motivate the folk in their own regions. Perhaps whoever follows me will have new ideas and more success in this.

I believe that the lack of activity and contribution in local areas is the major weakness of the SIG ideal, and if this situation cannot be turned around, the SIGs may very well suffer the same fate as the NZIMLS Branches. Don't let it happen! We have to come too far not to survive and improve on our performance.

Acknowledgments

I should like to take this opportunity to thank all the *Network* members for their loyalty and support, and especially the committees (both national and Auckland) for putting up with my sometimes 'stand-over tactics' to ensure things got done. I did not get let off too lightly either on numerous occasions. The Auckland group's meetings are renowned for being noisy, vigorous affairs and I often got caught in the 'crossfire'.

Committee for 1994/1994

Nomination forms for committee members will be sent out with the June *Network News*. Please consider whether you might be available, or know of somebody else who would be willing to take a turn at serving on the national committee in some capacity.

Committee members (which include regional representatives) should write to *Mary-Ann White, c/o Immunology Department, Diagnostic Laboratory, PO Box 5728, Auckland,* before 1 June advising her of whether they are willing to stand again or whether they have found a replacement or a willing nominee.

The recent formalization of SIGs requires that all appointments must be confirmed at the SIG/Council meeting in August before Conference. The newly-appointed convenor will be attending this meeting.

NZIMLS Annual Conference and Scientific Meeting

This year's conference in Hamilton should make it very accessible for North Islanders especially. I hope that combined with reasonably priced accommodation there will be a good turnout of all our members to support the Waikato Branch of *ISIG*.

The preliminary program looks promising. The scientific organizing committee has offered the winner of the best paper at the various seminars a free registration (value at least $200.00) to attend conference and the scientific meeting and present their paper. Perhaps some other presenters at the seminars could polish up their papers for the bigger audience also. You will have had the 'dress rehearsal' and settled the nerves. It would be great to have some younger people standing up in front of their colleagues.

Look forward to seeing you in August when some very important decisions on *ISIG*'s future need to be made.

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

Title	Hilder Memorial Prize.
Donor	NZ Institute of Medical Laboratory Science (Inc.)
Nature	This award honours the memory of the late F.M. Hilder. An award of two hundred dollars ($200.00) will be made biennially to the author of the best technical communication published in the Journal of the NZIMLS.
Eligibility	All financial members of the New Zealand Institute of Medical Laboratory Science (Inc.)
Method of Entry	Publication of a technical communication in the Journal of the NZIMLS.
Date of Entry	All Technical communications published during the two year period ending in November 1994 will be considered for this award.
Judging	The judge shall be the Editor of the Journal who also may seek the advice of the Awards Committee. If in the opinion of the judge the standard of articles submitted do not merit an award, then no award shall be made.

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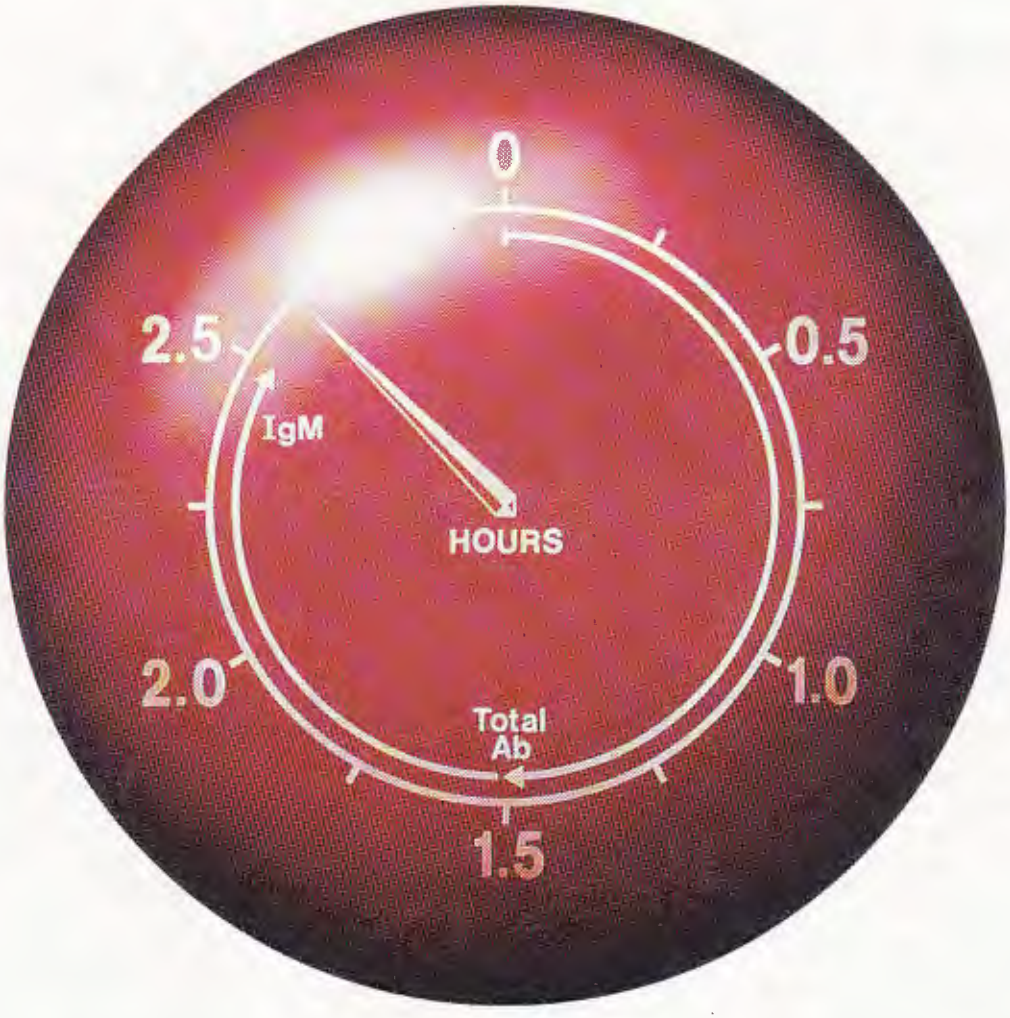

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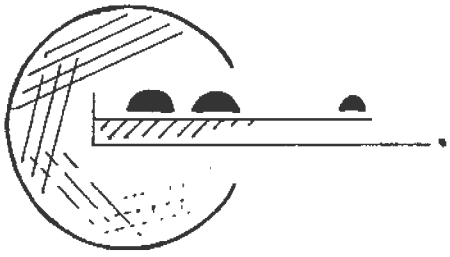

MICROBIOLOGY

SPECIAL INTEREST GROUP

Convenor: Shirley Gainsford
Contact Address: Valley Diagnostic Laboratories Ltd,. P.O. Box 30-044, Lower-Hutt

Report of a Microbiology Seminar held at the Great Lake Centre, Taupo, on 12 March 1994

The seminar was organised by the committee of the Microbiology Special Interest Group.

Altogether sixty-two technologists attended the meeting, together with representatives from Murex, Scianz, Life Technologies, Intermed, Abbott and Syva. The accent was on informality and the venue, with doors opening on to a sunny terrace, was ideal for the purpose.

With the exception of a very excellent presentation by Mike Brokenshire of Auckland Hospital on *The laboratory diagnosis of Chlamydia trachomatis infections: a comparative study of the Chlamydia IMX MEIA assay versus the routine Chlamydia culture method*, al the talks were of 10 minutes duration.

There were 29 presentations in all, so it was quite remarkable that we were able to fit them all in and keep pretty well to time. As you will see from the summary below, the topics, though diverse, were all very relevant to the problems and interests we share in our day-to-day work.

Bone abscess in a one-year-old caused by Kingella kingae
Vicki Trotter of Palmerston North Hospital gave a lucid account of this and other cases of bone infections in children caused by this fastidious organism.

An illegal immigrant
Lyne Jones of Valley Diagnostic Laboratory, Lower Hutt, told us about *Tunga penetrans*, a cause of infection in a toe.

An MRSA outbreak: probable environmental source — use of E test for Methicillin MIC
Mary Bilkey of Auckland Hospital gave an interesting and informative account of an outbreak of MRSA in two urology wards. Some careful detective work indicated that the source of spread was environmental rather than from staff-patient or direct patient-to-patient transmission. The E test compared well as a method of obtaining a quick MIC result.

MRSA detection by disk diffusion
This talk by Greg Riches of Taranaki Base Hospital dealt with a problem we all experience in reliably screening for Methicillin resistance. Media now used at Taranaki Base is Mueller-Hinton with 5% salt with incubation at 30 degrees C. Problems were encountered with one brand of Mueller-Hinton base.

Direct sensitivity testing
Dave Scarrow from Tauranga Medical Laboratory compared direct sensitivity testing of urines with indirect testing of isolates by the Standard NCCLS method. His results indicate that direct testing is a valid method.

Streptococcus pneumoniae resistance
Catherine Tocker of Diagnostic Laboratory, Auckland, reviewed *S. pneumoniae* solates with increased resistance to Penicilin, and reminded us of the importance of using an Oxacillin 1 microgram disk for the detection of Penicillin resistance in Pneumococci.

Sensitivity testing of coagulase negative Staphylococci by NCCLS
This was a problem raised by Mary Carr for discussion. Apparently everyone has difficulty with CNST, partly because of their diversity. Thanks to those of you who offered advice.

Review of problems in identifying CNS
Darren Welch of Auckland Hospital highlighted the difficulties of correctly speciating these organisms.

My experiences working in the U.K.
Susan Mahar of Rotorua Medical Laboratory told us of her experiences as a research technologist in the U.K.

Rhodococcus equi
Chris Pickett of Medical Laboratories, Hamilton, reviewed the organism and the infections it causes.

Significance of Adenovirus in infantile diarrhoea
Wendy Harris of Hutt Hospital compared direct detection using the ORION Latex with electron microscopy.

Prototheca
Jan Deroles-Main of Medical Diagnostics, Palmerston North, described an interesting case of skin infection in an elderly female.

BV or not BV
Bruce Dove and Brian Cornere of Greenlane/National Women's Hospital, Auckland, gave an excellent review of the diagnosis of Bacterial Vaginosis, emphasising the importance of direct microscopy and pointing out a probable role in preterm birth.

Summer itch
Parmela Lane-Parr of Tauranga Medical Laboratory described a case of refractory scabies which was successfully treated with a preparation called Liclear from Welcome.

Waikato outbreak of Mycobacterium tuberculosis
Sarah Thirlwall of Waikato Hospital presented evidence of a serious increase in cases in rural Waikato and discussed the steps, such as supervised medication, which are being taken to combat the problem.

Aspects of Mycobacteriology reference work at Wellington Hospital
Mary Carr reviewed the work being done in the Mycobacteriology Reference Lab.

Review of Tb cases 1990-1993 and discussion of staff monitoring procedures
Anne Paterson of Rotorua Hospital discussed the rise in Tb cases in the period and pointed out the doubtful value of staff monitoring for Tb and other infectious diseases.

Discussion topic: Yersinia from faeces
Alan Monaghan from Medical Laboratories, Taranaki, led a discussion on the merits of testing all faeces for Yersinia when the significance in many cases is uncertain.

The identification of Yersinia enterocolitica using API 10
Kate Kemp from Valley Diagnostic Laboratory, Lower Hutt, discussed difficulties encountered in the use of API 10 to identify this species. Incubation at 30 degrees C overcame the problem of false negative ONPG results. Inclusion of an ornithine broth improved the detection of ornithine decarboxylase.

Yersinia-triggered reactive arthritis
Ruby Yee from Hutt Hospital described a case of reactive arthritis with positive Yersinia serology in which Yersinia was isolated from formed faeces using selective agar. The importance of looking for this organism in formed faeces in selected cases was discussed.

Anaerobes: how far to go
Tina Littlejohn of Medical Diagnostics, Palmerston North, raised a problem obviously shared by many of us. Use of selective media as a preliminary ID screen was suggested. Most laboratories said they were not speciating anaerobes.

Streptococcus agalactiae from genital swabs
This discussion topic was introduced by Alan Monaghan from Taranaki Medical Laboratories. The problem of whether to report these in vaginal swabs was discussed. Some labs get around it by reporting wihou: sensitivities and with a comment about significance. It was pointed out that pregnancy was not always indicated on the request form.

Bacterial, fungal and amoebic contamination of contact lenses
Jane Shewan from Waikato Hospital presented her work on contamination of contact lens cases. The results revealed a contamination rate of 80%, with the incident of *Acanthamoeba* in the cases being much higner than infection rates would indicate.

RSV at Hutt Hospital
Heather Laird of Hutt Hospital presented the results of her work using the Kallestad kit for direct detection of RSV in nasopharyngeal secretions.

Cyanobacterium-like bodies: a case study
Steve Soufflot from Medical Laboratories, Hamilton, gave a fascinating account of a case of infection with *Cyclospora kaetinensis* in a patient who had recently returned from Bali.

Detection of Clostridium difficile
John Elliot from Wellington Hospital presented work done by Andrea Stenhouse on a comparison of culture on selective agar with toxin detection by ELISA and by Latex. Toxin detection was slightly more sensitive than culture but was more expensive. The advantage of a rapid result could justify the extra cost. A discussion followed on the merits of using a selective approach to the examination of faeces rather than the comprehensive protocols which are frequently applied.

The Privacy Act as it affects our profession
David Riley of Diagnostic Laboratory, Auckland, advised us all to familiarise ourselves at least with the summar.sed version.

Post-graduate development
Bruce Dove and Brian Cornere led a discussion on how best to ensure that technologists were given the opportunity to update and develop their knowledge and in particular their practical skills. The MSIG will take note of what was said.

Finally, Jan Deroles-Main presented Shirley Gainsford with a bottle of wine on behalf of us all. Shirley had done the lion's share of the work to make it all possible. Bruce Dove thanked the committee for their work organising the day, and then we all emerged into the sunshine to enjoy a most delicious barbecue tea.

A prize was awarded for the best presentation. With so much quality material to choose from the decision was a very difficult one, but congratulations to Heather Laird of Hutt Hospital for her presentation on RSV.

Unfortunately the Committee had to miss half the barbecue in order to hold a meeting. Shirley wished to step down as convenor, and Jan agreed (with some encouragement) to take her place.

The committee now comprises:
Jan Deroles-Main, Medical Diagnostics, Palmerston North, Convenor. Dave Riley, Diagnostic Labs, Auckland. Mary Carr, Wellington Hospital, Secretary. Janet Wilson, Medical Laboratory, Dunedin, Treasurer. Shirley Gainsford, Valley Diagnostic Lab, Lower Hutt. Dave Scarrow, Medica Laboratory, Tauranga.

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TRANSFUSION SCIENCE

SPECIAL INTEREST GROUP

Convenor: David Wilson
Contact Address: c/- Sheryl Khull, Transfusion Laboratory, Wellington Hospital, Wellington. Fax: 04-389-5608.

N.I.C.E. News

The N.I.C.E. Weekend was held again at Wairakei, on 9-10th April this year. Once again there were over forty participants, and we all enjoyed the weekend of sharing, teaching each other, and having fun. The abstracts of the NICE presentations are published on later pages.

2b or not 2b? C3 Convertase by any other name . . .

Is C3 convertase C4b2a or C4b2b? The answer seems to be "yes"! Both versions appear in scientific publications.

Following activation of complement component C1, several components are enzymatically cleaved into fragments. The larger cleavage fragments of C3, C4 and C5 were designated C3b, C4b and C5b, while the smaller cleavage fragments were designated C3a, C4a and C5a.

Unfortunately, the larger cleavage fragment of C2 was designated C2a and the smaller C2b. C3 convertase was therefore termed C4b2a, even though it is the larger fragment of C2 which combines with C4b to form the enzyme. Some years ago, some prominent workers in the field suggested that the cleavage products should be renamed to follow the other components.

Some, but not all, modern publications have followed this suggestion. The 11th (1993) edition of the AABB Technical Manual does so, making it clear that the fragment referred to is the larger fragment which is designated C2a in some texts. The 9th (1993) edition of "Mollison" also follows the suggestion, but the term C4b2a occurs in error in some places. I guess even the experts get confused sometimes.

A Review of Molecular Methods for Tissue Typing

The following is extracted from a review article in a recent edition of AABB Newsbriefs.

"The human major histocompatibility complex (MCH), located on the short arm of chromosome six, is one of the most studied regions of the human genome. The MHC molecules are transmembrane glycoproteins encoded by over one hundred genes.

Three related groups of loci compose the region. Class III molecules are soluble proteins not considered in tissue typing. Serologically determined allelic products of Class I molecules found on all nucleated cells as well as platelets are named HLA-A (26 alleles), HLA-B (57 alleles) and HLA-C (10 alleles). Serologically determined products of Class II molecules found primarily on cells that function in antigen presentation are named HLA-DR (21 alleles), HLA-DQ (9 alleles) and HLA-DP (22 alleles). Additional loci have been described in both Class I and II regions and the number of alleles continues to increase.

The use of molecular techniques to define the HLA genes is replacing the serological identification of the gene products. Although serological techniques are standardised and widely accepted, the introduction of molecular techniques allows us to examine the MHC with greater versatility and higher resolution.

Molecular Techniques

Techniques used most widely to detect DNA polymorphisms are direct sequencing, single and multi-locus restriction fragment length polymorphism (RFLP) mapping and various polymerase chain reaction (PCR)-based methods.

Direct sequencing of the Class I and Class II molecules provides us with the most detailed typing possible, however, it is not currently a practical method for routine HLA typing.

The RFLP method is used to detect and analyse the nucleic acid structure of highly polymorphic loci, more specifically areas of DNA containing variable numbers of short repetitive sequences called VNTRs (variable number of tandem repeats). Variability in techniques for mapping VNTR loci is seen in the types of probes used (single locus vs multi-locus) as well as the methods for labelling the probes (radiolabelled or chemically modified for colourimetric or chemiluminescent detection methods). Generally RFLP mapping requires five days to perform and involves fragmenting the DNA, performing analytical gel electrophoresis on the restricted DNA, transferring the DNA from the gel to a membrane, performing the blot hybridisation with a probe containing the specified VNTR sequence and the final detection process.

The PCR technique is a simple yet revolutionary method of replicating a DNA sequence of interest. Using PCR amplification, millions of copies of a particular segment of DNA can be generated in a few hours. PCR-generated DNA segments for tissue typing are currently identified by three common techniques.

One of the methods in use for tissue typing is dot-blot hybridisation, which involves immobilisation of the sample DNA on a solid matrix and interaction with sequence specific oligonucleotide probes (SSO or SSOP). Hybridisation of the SSO probe is then visualised either autoradiographically or through colourimetric or chemiluminescent methods.

A second method used to dentify specific fragments of DNA uses sequence specific primers (SSP). Primers, short sequences of DNA paired with a single strand of DNA, prime the DNA polymerase-mediated synthesis of a complementary chain during the PCR cycle. The resulting amplified DNA fragments are visualised after gel electrophoresis with ethidium bromide staining, silver staining or fluorescent methods.

The last method, amplified fragment length polymorphism (AMFLP) testing, uses oligonucleotide primers to prime a PCR reaction in regions of DNA flanking a VNTR-like locus. Following rounds of amplification, DNA fragments are displayed using acrylamide gel electrophoresis and a silver staining procedure.

The advantages of PCR technology are a fast turn-around time, less restrictive sample requirements, high sensitivity and potential for automation. Because of the high sensitivity of PCR, laboratories performing this technique must be aware of the potential false-positive and false-negative results, typically due to contamination, and use appropriate procedures and controls to ensure reliability of results.

Transplantation Support

Tissue typing is one of the tools used in both solid organ and marrow transplantation to maximise the chance for long-term survival of the graft in the recipient. Although the standard serologic typing techniques and the mixed leucocyte culture (MLC) assay continue to be used in routine histocompatiblity laboratories, molecular techniques are beginning to replace them, especially for Class II typing.

Molecular technology has provided a mechanism to examine HLA alleles at a much higher resolution than serologic techniques. For example, HLA-DR6 has two serologically-defined cross-reactive groups, DR13 and DR14. Using molecular techniques, DR13 has been shown to have six subtypes and DR14 nine subtypes. The extent to which certain mismatched Class II antigen combinations affect transplant survival is not currently well-known.

Due to the complexity of the Class I antigen system, serology remains the method of choice for HLA Class I typing.

Summary

DNA analysis methodologies represent an increasingly valuable tool for transplantation support, forensic investigations and parentage testing. The molecular techniques available today and in the future provide us with highly specific information with which to detect and define genetic diversity."

N.I.C.E. Presentations

Communications
Lorraine Rimmer, Auckland Regional Blood Centre, Auckland Hospital, Auckland.

How well do you communicate? A brief look at the communication circle and the barriers that occur.

Progress Towards 2020
Roger Austin, Immunohaematology, Taranaki Base Hospital, New Plymouth

At the first NICE weekend, Retro-extrapolation technology was used to foresee the blood banking world of the year 2020. At this, the fifth NICE Weekend, a review of progress toward 2020 is presented.

Blood Money
Ray Scott, Auckland Regional Blood Centre, Auckland Hospital, Auckland

One of the results of the health reforms, has been the requirement for Blood Services to identify and recover the costs of providing blood and blood products. While to some this may appear to be a relatively simple accounting exercise, in reality it is not. This paper will identify some of the complicating issues associated with the cost recovery exercise.

Our Day Will Come
Susan Duncan, Wanganui Diagnostic Laboratory, Wanganui

We are all concerned about health and safety in the workplace, but is your laboratory prepared for a major earthquake? The effects and how to minimise them are presented.

Managing a Major Trauma Case in a Small Hospital/Laboratory
Marina Wigmore, Laboratory, Thames Hospital, Thames

How does the small hospital/laboratory cope with managing a major trauma case, until the patient is stable enough for transport out?

Please Send 5 Units of Group O, R1R1, K-, Jkb-, S-.
Faye Martin, Immunohaematology, Memorial Hospital, Hastings

This paper expresses appreciation of the Regional Centres in assisting the "outposts" with difficult supplies.

Preliminary Report of a Possible New Antigen
Elizabeth Fisher, Masterton Hospital, Masterton

A report on an as yet unidentified antibody awaiting overseas confirmation is presented.

The Persistence of Red Cell Antibodies
Kathy Holder, Pathology Department, Palmerston North Hospital, Palmerston North

Clinically significant red cell antibodies may become undetectable in a patient's serum over the course of time. The importance of thorough record keeping is discussed.

Blood Storage in the Line of Fire
Carole Watson, Auckland Region Blood Centre, Auckland Hospital, Auckland

This paper reviews the short evaluation carried out by the ARBC and the New Zealand Army on a portable chiller designed for use in a field hospital. The ARBC received the chiller 24 hours before the chiller was to go on a field exercise for the first time.

Plasma Fractionation of CSL
Catherine White, CSL Ltd, Bioplasma, Parkville, Victoria, Australia

Approximately 25,000 litres of New Zealand plasma are shipped to CSL Bioplasma each year for fractionation into stable plasma products. This talk will aim to give a brief overview of how the plasma is processed. It will concentrate on developing the relationship we need as customers and suppliers to each other, ensuring our expectations are met at both ends of the contract fractionation process.

The presentation will state CSL's absolute specifications for incoming plasma and discuss the "tolerable variables". Areas where process control is required will be discussed.

Specifications will cover:
* plasma quality;
* plasma quantity per donation;
* labelling;
* packing;
* transportation;
* documentation.

Auckland Region Cadaver Donor Review
Carolyn Dyer, Auckland Regional Blood Centre, Auckland Hospital, Auckland

A review of the Cadaver Donors tested at the Auckland Tissue Typing Laboratory in 1993, comparing the origin of donors, the blood group of donors and the subsequent distribution of the retrieved kidneys with the 1992 data. The trends of the last five years will also be presented.

Auckland's Thermal Contribution — Ongoing Mud
Sandra Beckman, Auckland Regional Blood Centre, Auckland Hospital, Auckland

An overview of the statistics relating to Matched Unrelated Donors (MUDs) and MUD searches in the Auckland area in 1993, progress so far in 1993 and what does the future hold?

Does the Body fit the Genes? A Comparison of Class II Serology Versus DNA by PCR-SSP
Kathie Figgins, Auckland Regional Blood Centre, Auckland Hospital, Auckland

A comparative study of HLA-DRB1 typings by standard serology using Dynabead extracted cells and a PCR-SSP method using DNA amplified with sequence-specific primers.

*DRB1*0103 A SEROLOGY AND DNA ANOMALY*
Margaret Ushakoff, Auckland Regional Blood Centre, Auckland Hospital, Auckland

With the introduction of PCR-SSP technology, we have been able to assign a DR antigen in the place of a previously assigned blank from serological typings. We will look at three families of interest.

POLYMERASE CHAIN REACTION — APPLICATIONS AND EXPERIENCE
Holly Perry, Auckland Regional Blood Centre, Auckland Hospital, Auckland

The Polymerase Chain Reaction (PCR) amplifies a region of DNA of interest up to a million times. The process will be explained.

PCR has multiple and widespread applications in science. Of interest to immunohaematologists are detection of infectious agents, red cell typing at the molecular level, HLA typing, forensic science and paternity testing.

Application of PCR to HLA-DR typing will be discussed.

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Dead or Living: Have you ever considered being an Organ Donor?
Dianne Whitehead, Department of Transfusion Medicine, Canterbury Health Laboratories Ltd, Christchurch

Traditionally a donor has been thought of as someone who donates blood. However, with advancing technology, other forms of donation are becoming increasingly common. For example, bone banking is now fairly routine.

Should we now actively encourage the public to consider the possibilities of donating platelets, bone marrow or organs?

A brief consideration from both sides of the question will be presented.

Looking for Zebras
Eileen Chappell, Immunohaematology, Taranaki Base Hospital, New Plymouth

Bone Marrow Transplant Recipients' blood grouping serology can present unusual and unexpected results. Background information and a case study are presented.

Monday is Washing Day
Jacqui Jones, Auckland Regional Blood Centre, Auckland Hospital, Auckland

A case study of a Paroxysmal Nocturnal Haemoglobinuria patient — with a happy ending?

The Demise of Buffy Thompson
Marie Wilson, Blood Bank, Gisborne Hospital, Gisborne

This is the era of "Multi-skilling" according to our managers!

A case study will be presented demonstrating multi-skilling in the Transfusion Medicine Department.

Experimental Inoculation of a Bag of Blood by Yersinia Enterocolitica
David Fisher, Masterton Hospital, Masterton

For experimental purposes a unit of blood was inoculated with Yersinia enterocolitica. A report on its value is presented.

The BTS now Yersinia Free?
Zandra Mitchell, Immunohaematology, Napier Hospital, Napier

A summary of the changes made by the Regional Blood Transfusion Services in response to the public awareness of Yersinia in our donated blood supplies.

Come on in the Water's Fine
Kevin McLoughlin, Dept of Transfusion Medicine, Canterbury Health Laboratories, Christchurch

An investigation of neo-natal infections by an infection control nurse at Christchurch Womens' Hospital led to a close look at a Blood Bank waterbath. The resulting protracted trail of culturing and product testing produced some findings that raised a few eyebrows. Have you ever wondered how clean your water really is.

No More Guessing Games
Karen Taylor, Cardinal Community Laboratories, Christchurch

It is now six months since we started using the DiaMed Micro-Typing System for all our blood grouping and antenatal antibody screening. It has proven itself to be a very sensitive and easy to use technique.

Some data and discussion will be presented on the following advantages which we find particulary beneficial, compared to our previous manual methods:

1. Simple interpretation of positive and negative reactions.
2. Reduction in false positive antibody screens.
3. Speed of performing tests ie. no cell washing.
4. Standardisation of results between different users.
5. Small amount of sample required and the ability to use anticoagulated blood.

Diamed Antibody Screening — the impact on users and their Impressions
Jim Manolios, Business Manager, DiaMed, Surrey Hills, Australia

DiaMed users throughout Australia and New Zealand completed a questionnaire on the impact of changing to the DiaMed technology for antibody screening. Their responses will be presented and an analysis of the impact of the technology will be discussed.

Antibody Detection Sensitivity in the DiaMed Gel Test
Geoff Nicol, Scientific Director, DiaMed, Surrey Hills, Australia

The DiaMed technology uses predispensed, sealed reagents impregnated in a gel matrix and antiglobulin tests are performed without cell washing. As a result of these differences to traditional techniques, the issues of evaluating sensitivity and providing quality control of reagents also differ. Some of the variables associated with these procedures in both direct and indirect antiglobulin tests will be discussed.

Large Scale Production of Monoclonal Antibodies for Blood Grouping
Peter Bradley, CSL, Biosciences, CSL Limited, Australia

The aim of any production process is to produce a product of the appropriate quality at an economic cost. The production of monoclonal blood grouping reagents initially appears not to be complex; this is not the case.

There are a variety of factors involved which can complicate the production process. These involve cell line production, mycoplasma infection, antibody specificity, fermentation characteristics, pH requirements and downstream processing.

The large scale production of reagents can be in the form of ascites, static culture or fermentation. The decision to go with one of these options will depend on the scientific, economical and ethical issues raised by each of these options.

How's this for Positive?
Max Love, Immunohaematology, Hutt Hospital, Lower Hutt

A report of a transplacental haemorrhage resulting a positive Kleihauer test is presented.

Gee! A Prime Example of HDN
Sheryl Khuil, The Blood Centre, Wellington Hospital, Wellington

A group A Rh Negative patient with apparent ANTI-C+D in her serum was monitored throughout her pregnancy as her antibody titre rose. On delivery her baby's cord sample showed a strongly positive DAT but grouped as Rh Negative. The elucidation of this anomaly revealed an unusual explanation.

Quatro BG-100
Paul Clark, Auckland Regional Blood Centre, Auckland Hospital, Auckland

Earlier this year the Auckland Blood Centre took delivery of a Quatro BG-100, fully automated continuous flow blood grouping and antibody screening system. Our initial experience with this machine and how it compares with the present Technicon autogrouper 16C analyser will be reported.

Quatro AR-96
Ian Dale, Quatro Biosystems, Manchester, U.K.

A description of the components of an instrument for image analysis, how they compare to a photometer reader and the advantages image analysis gives will be presented. The software required and how it works to read a microplate, the different types of assay that can be read and the storage of image files will also be discussed.

Blood Donor Management System
Lindsey Browning, Transfusion Medicine, Southland Hospital, Invercargill

The Southland Blood Transfusion Service is presently installing the Détente Blood Management System which will handle data processing and storage activities to ensure an appropriate and cost effective operation.

An overview of the system will be presented.

Australian Society of Blood Transfusion
Roger Austin, Immunohaematology, Taranaki Base Hospital, New Plymouth

The Scientific committee has been given the task of producing reports on the following:

1. Guidelines for Autologous Blood Collection in Hospitals.
2. Information Leaflets for patients.
3. Administration of anti-D with respect to
   a) Appropriate dosage
   b) Assessment of Adequacy of Dose
4. Irradiation of Blood Products.
5. Exchange Transfusion.

Statement of Intent • Blood Transfusion Trust

Margaret Unwin, Executive Officer Blood Transfusion Trust, Wellington

Unless otherwise provided, the information in the Statement of Intent applies to the timeframe ending 30 June 1996.

A charitable trust established pursuant to Section 92 of the Health Amendment Act 1993 with its trustees incorporated as a Trust Board and operating as a Crown Entity for the purposes of the Public Finance Act 1989.

1. Objective

The Blood Transfusion Trust has been established for the purpose of maintaining and improving the health of people in New Zealand by the stewardship of donated blood, and to facilitate the co-ordination and adequate supply of blood and blood products.

2. Nature and Scope of Activities

a) To protect the gift status of donated blood.
b) to allocate blood collection rights on the delegate authority of the Minister.
c) To endorse acceptable contracts for the supply and processing of donated blood between Blood Transfusion Service collectors, processors and health service providers.
d) To ensure there are secure arrangements for the fractionation of New Zealand plasma.
e) To establish Blood Transfusion Service reporting requirements in respect of statistical data and key information on Blood Transfusion Service operations.
f) To monitor for and facilitate the remedying of any product imbalances, shortages of supply or any other identified problems or inadequacies.
g) To report to the Ministry of Health on the overall reliability and efficiency of the Blood Transfusion Service.

3. Performance Measures

3.1 Protecting the Gift Status

i) Monitor that charges do not attribute to recover any inherent value in donated blood itself.
ii) Advise the Minister when exemptions to the prohibitions in Subsections 1 and 2 of Section 92B and Subsection 1 of Section 92D of the Health Amendment Act 1993 are sought.
iii) Develop a plan to manage the excess albumin stock by 30 June 1994.

3.2 Allocation of Blood Collection Rights

i) Develop the criteria for the allocation of collection permits criteria for allocation by 1 November 1993.
ii) Seek applications for collector permits by 1 December 1993.
iii) Issue definitive collection permits by 31 December 1993.
iv) Develop and implement a plan to ensure adherence to permit conditions by 30 June 1994.
v) Review the permit allocations annually within 12 months of issue.

3.3 Endorsement of Supply and Processing Contracts

i) Establish the contract requirements by 1 November 1993.
ii) Assist in the establishment of contracts between parties.
iii) Endorse the settled contracts within 28 days of receipt.

3.4 Contract for Fractionation of NZ Plasma

i) Continue the negotiation of a favourable contract for the fractionation of NZ Plasma.
ii) Contract with a party able to act as NZ agent for distribution of the fractionated products throughout New Zealand by 30 June 1994.
iii) Ensure all the contractual parties involved in the supply of fractionated products in NZ adhere to the contractual terms.
iv) Ensure adequate liaison with Ministry of Health re funding implications of supply of fractionated products.

3.5 Information Systems

i) Ascertain information necessary to monitor the reliability and efficiency of Blood Transfusion Services.
ii) Establish the reporting requirements by 31 December 1993.
iii) Agree the reporting mechanisms for all parties by 31 December 1993.
iv) Include reporting and audit requirements in all collection permits and processing and supply contracts by 31 December 1993.
v) Develop comparative information on collection and processing by 30 June 1994.

3.6 Managing Product or Supply Problems or Inadequacies

i) Develop information systems to adequately monitor supply and/or demand by 30 June 1994.
ii) Develop a credit system for fractionated products by 31 December 1993.
ii) Oversee the implementation of the credit system for fractionated products by 30 June 1994.
iv) Facilitate intervention to address under/over supply situations should the need arise.

3.7 Reporting to the Ministry

i) Report to the Ministry of Health annually on the overall reliability and efficiency of the blood transfusion services.
ii) Report critical incidents or significant events within 7 days.

Disarray in Transfusion Services

Steve Gibbons, Dept of Transfusion Medicine, Canterbury Health Laboratories, Christchurch

The introduction of contestability in health service delivery led to major restructuring of the Blood Transfusion Services in New Zealand. This was necessary because the concept of gifting blood and the provision of free blood to health care providers did not fit easily into the new health model. At the same time the Rodgers report expressed concerns regarding the reporting lines of the previous Transfusion Advisory Committee and the lack of a formal contract with CSL.

Within this milieu the Transfusion Advisory Committee was reconfigured and given the role of providing policy advice to the Director General of Health. At the same time the Ministry of Health was restructured and changed from a centralist focus to one of decentralization and an emphasis on providing health policy. At the same time the Blood Transfusion Trust was established. Amongst these changes the working parties of the old Transfusion Advisory committee seemed to have been overlooked. Rightly, those of us who work in the blood transfusion are have become concerned as to how policy decisions in the future will be implemented. This and related issues will be discussed.

Transfusion Science Special Interest Group

David Wilson, Cardinal Community Laboratories, Christchurch

There has been a resignation. Are you interested in becoming a member or do you know anybody who would be interested?

The Special Interest Group workshop to be held in conjunction with the NZIMLS Annual Scientific Meeting this

year is Entitled "New Technologies". Are there any new technologies that you would like presented?

There will also be a few suggestions as to how you can assist the Special Interest Group.

Making a Meal of Itself
Will Perry, Biological Laboratories, Salmond Smith Biolab, Auckland

At every previous NICE Weekend there has been a presentation, or at least a discussion, about the value of papain in immunohaematological testing.

This poster will address the merits of papain and other proteolytic enzymes in pre-transfusion tests and the problems associated with their manufacture and use in the blood transfusion laboratory.

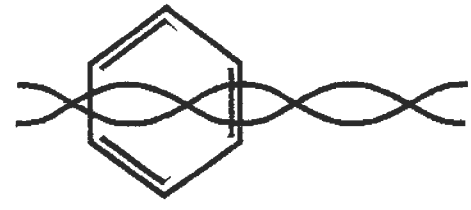
"Ram" — The Sign of the Times
George Bongiovanni, Medica Pacifica Ltd, Auckland

The use of Rapid Antibody Medium (RAM) creates a low ionic strength medium which increases the rate of antibody uptake during incubation, thus enhancing reactivity.

An incubation period of 10 minutes makes this procedure an attractive alternative for "after hours" testing.

New Products from Biotest
Chandra Selvadurai, SCIANZ Corporation, Auckland

* New reagents for the determination of Kell groups.
* Solidscreen : New technique for antibody detection in microtest plates.
* Erytype : Ready for use microtest plates for blood grouping.



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BOOK REVIEWS

Gillian McLeay Laboratory Training Officer, Auckland Healthcare Services Ltd, Auckland, has reviewed the following books.

''Immunology''.

Editors: Ivan M Roitt, Jonathon Brostoff, David K Male. Mosby-Year Book. 3rd Edition, 1993.
ISBN 0-397-44765-5. Soft cover.

I took the unprecedented step of recommending this latest edition as a text for medical laboratory science students, sight unseen, on the strength of the first two editions, each contributing so much to my personal studies and which, I and my colleagues teaching immunology in the Auckland area, used extensively as reference material. When I was given a copy to review, my confidence was more than justified.

It is interesting to note that Dr Ivan Roitt, (Emeritus Professor of Immunology and Director of the Institute of Biomedical Science, University College of London Medical School, UK), himself a prodigious author of immunological literature over two decades and with the seventh edition of his own book **''Essential Immunology''** currently in print, has once again joined Dr Jonathon Brostoff (Reader in Clinical Immunology, Department of Immunology, University College of London Medical School) and Dr David Male (Senior Lecturer in Immunology, Department of Neuropathology, Institute of Psychiatry, London, UK) in the preparation and publication of this welcome addition to the series of **''Immunology''.**

Evidence of further cooperation, adding to the quality of this book, is demonstrated between contributors and publishers, where the services of a professional scientific journalist was recruited 'to harmonize the contributions and to generate a feeling of continuity without damaging the writing style of individual authors'.

The book has a truly international ambience with contributors (23 in all, including the editors) from both the northern and southern hemispheres and from a diversity of clinical and scientific backgrounds. Predictably, most are from the UK, but Italy, Switzerland, the USA and our near neighbour, Australia, are represented also.

This latest edition, despite the increase in knowledge and technology incorporated in it, is much the same size as the second edition; this is even more remarkable, when the number of illustrations also appear to have increased. As a result there should be no significant price increase from the second edition.

The combination of colourful diagrams and tables (unique to the series) as well as colour prints demonstrating manifestations of clinical conditions, photomicrographs (colour and black and white, standard, UV and electron microscopy) with black and white pen drawings to clarify microscopic details, are perhaps the most exciting feature of this book.

All the illustrations with which readers have become familiar in the preceding editions are present, but the diagrams and tables have been redrawn with minor changes in the colour scheme; and more have been added. The result is an abundance of illustrations which provide visual summaries of the sections of each chapter.

A helpful addition is the *User Guide* which provides a key to the standard shapes (eg. cells, cell markers, organisms, antigens, antibodies) which are used consistently throughout.

A new innovation is the companion slide atlas of immunology (based on the contents of the book) which is also now available. Six binders contain the written material together with numbered 35mm slides of each illustration. This should prove a valuable asset for teaching immunology at all levels, taking into consideration the time and effort put into preparing such material by individual tutors, and will be welcomed by universities, polytechnics and laboratories. Further information may be obtained from the publishers, their agents or retail outlets.

Contents consist of the *Preface* where the editors express the '. . . earnest hope that the style of presentation will bring pleasure and comprehension to our many readers at the undergraduate, graduate and clinical stages of their careers.'

This is followed by the *User Guide, Acknowledgments* (in my opinion acknowledgment of the efforts of Dereck Johnson and his colleagues for the illustrations is well-deserved) and *Contributors* (much the same as previous editions with some new names added).

There are 25 chapters covering the same areas as previous editions, but with changes in keeping with more recent developments (I noted that there was much more information on cytokines, for example) and the merging of chapters on antibodies, T-cell receptors and the major histocompatibility complex into one titled *Antigen Receptor Molecules.* Genetic control of immunity and regulation of the immune response are both covered now in the chapter *Regulation of the Immune Response* by Dr Anne Cooke from the Department of Pathology, University of Cambridge. Being something of a 'historical nut' I particularly enjoyed the expanded chapter on *Evolution of Immunity.*

The addition of chapters on *Immunodeficiency* (Professor Fred Rosen, Center of Blood Research, Harvard University Medical School) and *Cell Migration and Inflammation* (Dr David Male) reflects the importance of current research and technological advances, especially relating to HIV infection and its sequelae. There are very comprehensive lists for further reading at the end of every chapter.

The appendices are another new feature — *HLA specificities, CD Markers and Cytokines.* These are followed by the *Glossary* (which looks much the same as before) and the *Index.*

I would describe this book as 'immunology on the big screen in technicolour.' Costing round about the $100.00 mark, this moderately-priced text should be in every laboratory's collection and on the bookshelf of those individuals who have the luxury of being able to afford it.

Just to maintain the balance of a critical review, if I was to voice any criticism at all (and it is more a suggestion than anything else) it is that there are no self-assessment questions, with their answers at the end of each chapter, as there are in many books now on the market. In the new atmosphere of 'student-motivated' learning, this is something the editors and publishers might like to consider for future editions.

''Essentials of Clinical Immunology''.

Helen Chapel & Mansel Haeney. Blackwell Scientific Publications. 3rd Edition, 1993.
ISBN 0-632-03366-5. Soft cover (336 pages).

The first edition of this book by these well-known authors was first published in 1984, reprinted in 1986, with the second edition produced in 1988 (together with an Italian edition the same year). Dr Helen Chapel (MA, MD, FRCPath) is Consultant Immunologist at John Radcliffe Hospital, Oxford and a lecturer at Oxford University. Dr Mansel Haeney (MSc, MB BCh, FRCP,

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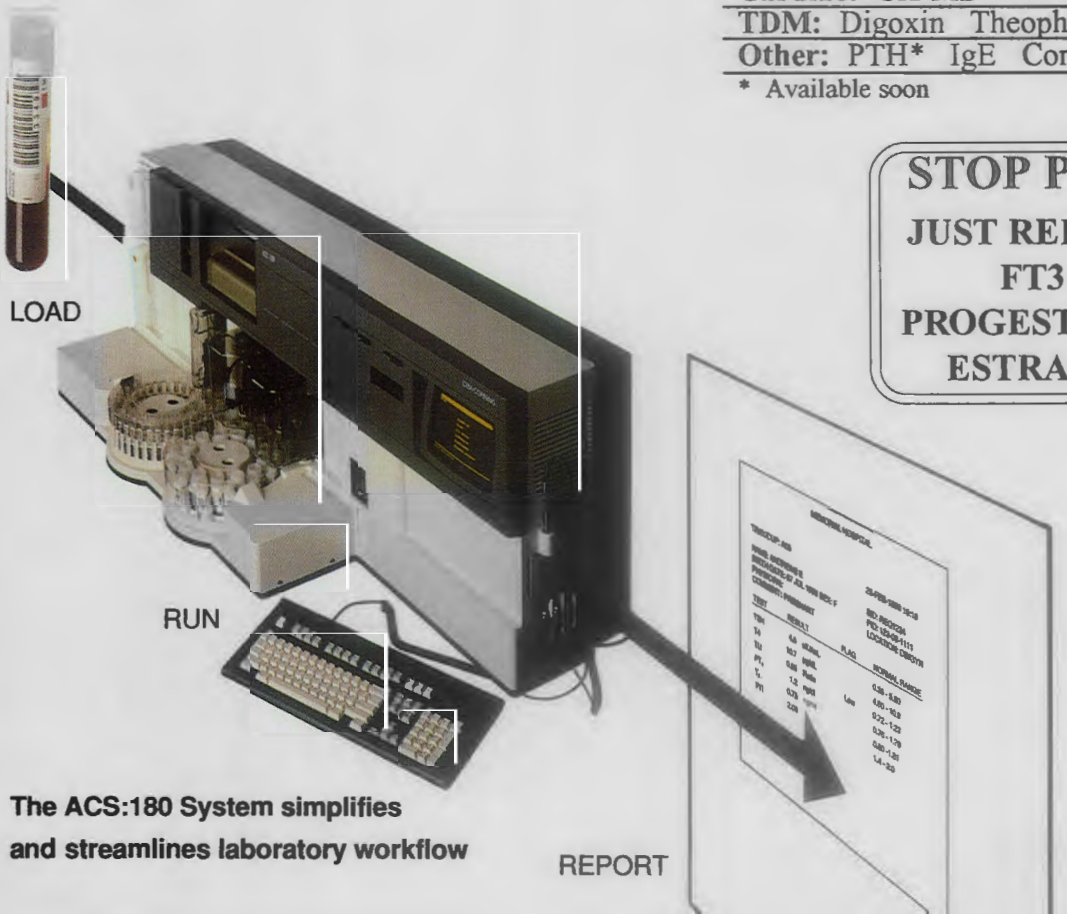

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FRCPath) is Consultant Immunologist, Hope Hospital, Salford. Their qualifications and experience allows each author to view the subject from both the clinical technological point of view.

Targeting medical undergraduates and 'out-of-date doctors', this book demonstrates immunology's role in clinical medicine, but is an affordable acquisition for the medical laboratory science student also. In the $75.00-$85.00 price range, its content utilizing clear print, simple black and white diagrams and many tables (the latter summarizing a wealth of information for quick reference) is 'illustrated' by case histories, which add another dimension for the technologist when reading clinical particulars accompanying a sample for testing and evaluating and validating results obtained.

The first chapter, *Basic Components*, is an overview of the immune system, followed by chapters written from the clinical point of view with the case histories demonstrating 'the usefulness (or otherwise) of immunological investigation in the management of these patients'.

The following chapters cover *Infection, Immunodeficiency, Lymphproliferative Disorders, Immune Manipulation* (including gene therapy), *Transplantation* (no lung or heart/lung transplants, or blood transfusion), *Kidney Disease* (large section on glomerulonephritis with lots of cause and effect diagrams and case histories), *Joints and Muscles* (including differentiation of acute sero-negative arthritides), *Skin Diseases* (good diagram demonstrating findings by direct immunofluorescence). *Eye Diseases, Chest Diseases and Respiratory Allergy, Gastrointestinal and Liver Diseases* (including allergy, autoimmune disorders, hepatitis A, B and C, plus HIV infection and its implication for the gut), *Endocrinology* (very good simple diagrams), *Haematological Diseases* (includes significance of anti-phospholipid antibodies), *Neuroimmunology* (good range of conditions), and finally *Pregnancy* (including the protection afforded by cells and local IgA in colostrum and milk and the cause and effect of disorders in pregnancy on mother and foetus).

Each of the above chapters describes disease processes, symptoms, *sequelae* and therapy, and is followed by *Further Reading* suggestions, *Questions* (small number of multichoice) and *Answers*.

A lot of the information is found in other books also, but it is well presented and excellent for studying the clinical aspects of immunology. The strength of this book is that complex matters are described in simple terms, aided by bold, simple diagrams and comprehensive tables, summarizing or comparing information.

It is within the price range of the pockets of senior students, registered technologists and pathology registrars as an alternative to other more expensive texts covering the same areas.

"Mechanisms of Microbial Disease"

Edited by Moselio Schaecter, Gerald Medoff, Barry I. Eisenstein. Williams & Wilkins. Second Edition (International Edition), 1993. ISBN 0-683-7606-X. Soft cover (973 pages)

This book (the first edition was published in 1989) is another example of the trend towards multi-author books, because the current explosion of knowledge means one person can no longer be a specialist in all areas of a subject. However, as you can see below, the three editors are more than qualified for their tasks of acting as contributors and shaping the final product:

Dr Moselio Schaecter, PhD.
Distinguished Professor and Chairman of the Department of Molecular Biology and Microbiology, Tufts University School of Medicine, Boston, Massachusetts.

Dr Gerald Medoff, M.D.
Professor, Departments of Medicine and Microbiology and Immunology, Director, Infectious Diseases Division, Washington University School of Medicine, St Louis, Missouri.

Dr Barry I. Eisenstein, M.D.
Vice President, Lilly Research Laboratories, Eli Lilly and Company, Indianapolis.
Formerly Professor and Chairman, Department of Microbiology and Immunology, Professor of Internal Medicine, University of Michigan Medical School, Ann Arbor, Michigan.

As an immunologist, who considers immunology a core subject for medical laboratory science, I also view microbiology in a somewhat similar manner, because the effects of host invasion by infective agents can be monitored in all laboratory disciplines. The diversity of known organisms, their life cycles, hosts' defence mechanisms, and the clinical and laboratory diagnosis of the disease they cause cover a broad spectrum of subjects within the discipline we call Clinical Microbiology.

When I commenced studying microbiology over thirty years ago I was awed, even then, by how much there was to learn. The text books of the day tackled the subject organism by organism, ("the bug parade") with long lists of facts and tables; much had to be memorized 'parrot-fashion,' as there appeared no other way of learning such a volume of detail when preparing for examinations). Consequently, a few weeks after the exam, this 'crammed' knowledge was lost. Some emphasis was placed on those organisms causing human disease, but you had to learn everything else as well.

This book provides a departure from this traditional, academic way of teaching, by identifying those organisms which are important in causing disease, and leaving the rest for other authors to write about in other books.

The editors have followed two principles. Firstly, microbial agents and the host response to them is presented solely for the purpose of understanding the mechanisms of infectious diseases and secondly, that focusing on the common features of all host-parasite relationships facilitates learning and recall. These concepts fit in well with the way immunology is taught and therefore the microbiological and immunological features of the book relate to one another in an extremely harmonious way.

Despite being an international edition, this is an 'all-American' book. The 39 contributors all come from the USA and most of the statistical information provided relates to North America. This is not necessary a disadvantage, because serious students will always check on the statistics of the population they are studying. We know of the variation between specific population groups, even within our own small country.

This book is for the benefit of medical students, other health professionals, graduate students and advanced students studying in courses on medical microbiology and infectious diseases, and is not intended as a reference text. Some familiarity with basic aspects of molecular and cellular biology is recommended. Medical and technical jargon is minimal. The information presented is relevant, very readable and reinforced continually throughout.

Divided into 3 sections, the first section, *Principles*, deals broadly with characteristics of micro-organisms, their life cycles and simple introductory descriptions of host defence mechanisms; the piece on *Phagocytosis* is very well done.

Section II, *Infectious Agents*, describes the major infective agents as biological models. An interesting feature of this section was the inclusion of case histories (with 'happy endings' — most people recovery from infectious diseases), paradigms (most useful as a summary of a particular organism's or group of organisms' *'modus operandi'*) and current methods of therapy. A word of warning here. Even though this book has been published only recently, treatment for various disorders change as new products come onto the market, and this information should be checked out in more current literature

such as journals.

At the end of each chapter are *Self-assessment Questions* and lists for *Suggested Reading*. (Interesting to note there were a number of books from the 1970s, and even one dated 1962; proves the point that there is still some useful information to be gained from older books, even from my time!)

Section III, *Pathophysiology of Infectious Diseases*, describes the way each of the major systems of the body react to and cope with a variety of infective agents. This is an area, which in my experience, laboratory students have had some difficulty in the past — the application of their theoretical and technological knowledge to the disease process and how it all relates to the overall picture in medical laboratory science. The inclusion of the topic of this section (usually taught as a separate subject) should aid students in understanding these concepts without having to wait for the years of experience many of us had to have in order to gain this 'panoramic view' of infectious diseases.

The remainder of the book consists of *Review Charts* (completed by the authors this time with references to where the information appears in the text) and *Answers to Self-assessment Questions* (descriptive — could be used as model answers for examinations), as well as a comprehensive *Index*.

This is a large book utilizing a simple format and style. There are only the basic colours of black, white, grey and two shades of buff incorporated in the numerous diagrams and tables; there are fewer photographs (black and white) than in other books, but they are adequate.

Falling somewhere in the $75.00-$90.00 bracket this is a real bargain for the volume of information provided. It is as up-to-date as any textbook can be in the year following publication, and I am really enjoying reading it and upgrading my knowledge in line with the 1990s. Microbiologists will find it an interesting supplementary review of their chosen field, virologists and immunologists will find it 'plugs a number of gaps' in their current knowledge, and of course it should be an essential text for the senior students and graduate technologist — and anyone else who wants a good read on a fascinating subject.

* * *

For details of recent publications, price and availability, as well as friendly and exceptional service, I can only recommend those whom I contact regarding information and purchase of books. They are:

Peter McConnell. McConnell & McConnell, Medical Publishers' Representatives. PO Box 169, Manurewa, Auckland. Telephone/ Facsimile: (09) 267-9612.

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NEW PRODUCTS AND SERVICES

SALMOND SMITH BIOLAB ACQUIRES SECOND AUSTRALIAN LABORATORY BUSINESS

Salmond Smith Biolab has purchased the assets and business of Melbourne based Johns Plastics as a going concern for Drager Australia Pty Ltd for an undisclosed sum.

Johns Plastics is a specialist manufacturer and marketer of disposable plastic ware such as specimen containers for laboratories.

It employs 40 people and its yearly turnover is in excess of $6 million.

Johns Plastics is a well established name in Australia, and has a substantial share of the Australian market for disposal laboratory plastic ware.

Further comments by Mr Brian Service, Chief Executive Officer, Salmond Smith Biolab.

Johns Plastics will operate as part of our wholly owned Melbourne based subsidiary, Biolab Scientific Pty Ltd.

We see the name Johns Plastics continuing as a well respected brand in the market.

The business of Johns Plastics is complementary to the Australian laboratory business of Rhone-Poulenc, which we acquired on March 1, 1994.

The two operations give us a significant business unit with combined Australian sales of in excess of $12 million.

This business unit mirrors the activities of our New Zealand Scientific Group, which has local and international sales — including Australian sales — forecast to be in excess of $39 million for the year ending June 1994.

Our New Zealand operations have grown rapidly, and Labserv, our New Zealand equivalent to Johns Plastics, is currently working 24-hours-a-day, 7-days-a-week to meet demand.

We will now be able to meet all Australian demand out of Australia, freeing up capacity to expand our business even further into other Pacific Rim countries.

Laboratory chemicals, scientific equipment and laboratory ware is a market in which we have a great deal of expertise, and the Johns Plastics purchase strengthens our focus in this sector.

The acquisition is also consistent with our move to specialise on three key inter-related industry groupings — scientific, plastics and food.

The Australian Biolab Scientific operations will make an immediate contribution to Salmon Smith Biolab's profitability.

Additional Comments from Mr Neville Bell, Managing Director, Drager Australia Pty Ltd.

The Johns Plastics business was acquired with the Healthcare operations from James Hardie's by Drager in September 1993.

The sale of Johns Plastics to Salmond Smith Biolab will enable Drager Australia to focus its attention on its core business in health care, medical equipment and safety equipment.

Salmond Smith Biolab has a significnt core commitment to the laboratory business, and this is a strategic expansion for Salmond Smith Biolab into the Australian market.

Drager believes that the Johns Plastics business will prosper with Salmond Smith Biolab and develop its full potential.

For further information please contact

Mr Brian Service
Chief Executive Officer
Salmond Smith Biolab
Tel 00 64 9 486 9600

Mr Neville Bell
Managing Director
Drager Australia Pty Ltd
Tel 00 61 3 265 5000

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Please address all correspondence to the Executive Officer, including Examination and Membership enquiries.

Editor
Rob Siebers
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Membership fees for the year beginning April 1, 1994 are:
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All membership fees, change of address or particulars, applications for membership or changes in status should be sent to the Executive Officer at the address given above.

Members wishing to receive their publications by airmail should contact the Editor to make the necessary arrangement.

NEW ZEALAND INSTITUTE OF MEDICAL LABORATORY SCIENCE 1994 CALENDAR

12/13 May	**Council Meeting**
27 May	**Applications close for Specialist Certificate examinations**
27 May	**Applications close for QTA examinations**
31 May	**Proposed rule changes and remits to be with the Executive Officer**
1 July	**Annual Staffing Survey**
2 July	**Nomination forms for the election of Officers and Remits to be with the membership (60 days prior to AGM)**
5/6/7 July	**Fellowship examinations**
22 July	**Nominations close for election of Officers (40 pior to AGM)**
10 August	**Ballot papers to be with the membership (21 days prior to AGM)**
17 August	**Annual Report and Balance Sheet to be with the membership (14 days prior to AGM)**
24 August	**Ballot papers and proxies to be with Executive Officer (7 days prior to AGM)**
29/30 August	**Council Meeting — Hamilton**
31 August	**AGM and SGM — Hamilton**
31 Aug-2 Sept	**Annual Scientific Meeting — Hamilton**
2 November	**QTA examinations**
9/10 November	**Specialist Certificate examinations**
17/18 November	**Council Meeting**

Membership Sub-Committee Report February 1994

Since the November meeting there have been the following changes:

	14.02.94	05.11.93	19.08.93	04.05.93
Membership	1177	1178	1235	1237
less resignations	7	2	16	6
less G.N.A.	4	4	10	2
less deletions	-	-	-	118
less deceased	-	1	1	-
less duplications	3	-	-	1
	1163	1171	1178	1235
plus applications	7	4	66	20
plus reinstatements	2	2	4	5
	1172	1177	1178	1235
Composition				
Life Member (Fellow)	12	12	10	12
Life Member (Member)	8	8	8	8
Fellow	20	20	20	20
Member	683	684	686	686
Associate	367	371	372	325
Non-practising	56	56	56	58
Honorary	26	26	26	26
Total	1172	1177	1178	1235

Applications for Membership
M. GLASSEY, Diagnostic, S. MAHAR, Rotorua Medlab, P. MASSEY, Whangarei, J. WILLIS, Auckland Medlab, K. FITZGERALD, Diagnostic, M. REES, Linton Military Camp, M. PECK, Overseas, A. IDEMA, Waikato, P. JAMES, Tauranga Medlab.

Resignations
G. HILL, Alpha Biologicals, L. WARDILL, Invercargill, V. THOMSON, Waikato, S. McCULLOCH, Invercargill, C. RAWSON, Hamilton Medlab, T. MacKAY, ARBC, M. COLES, Palmerston North Medlab.

Gone no address
D. ALLEN, Invercargill, K. McLEIGH, Invercargill, A. KEAST, Invercargill, A. LANDER, Invercargill.

The 1993-94 Council

The Council operates with four committees covering the areas of professional affairs, education, communications and membership, under the directorship of the President.

President: Dennis Reilly

Principal Technologist Diagnostic Laboratory, Auckland.

Dennis, as Convenor of the Professional Affairs Committee has interest in overseas aid. Dennis also chairs the QTA/ACC working party and is one of the NZIMLS representatives on the Medical Laboratory Technologists Board.

Vice President: Shirley Gainsford

Microbiology Department, Valley Diagnostic Laboratory, Lower Hutt.

Shirley is Convenor of the Education Committee, she is the NZIMLS Representative on the Auckland Institute of Technology Medical Laboratory Science Advisory Committee supervising the NDMLS and BAppSci courses. Shirley is also convenor of the Special Interest Groups Committees and is involved with the examinations set by the NZIMLS (Specialist Level and Qualified Technical Assistant Examinations).

Secretary/Treasurer: Paul McLeod

Microbiology Department, Nelson Hospital

Paul has a joint role of Secretary/Treasurer and in addition is a member of the Professional Affairs Committee. Paul is one of the NZIMS representatives on the Medical Laboratory Technologists Board.

Regional Representatives Region 1: Leanne Mayhens

Haematology Department, Auckland Hospital.

Leanne is a member of the Communications Committee and oversees all the awards donated both by the NZIMLS and the industry. Leanne also makes recommendations to Council on any rule changes required. Leanne is also on the ATA/ACC working party.

Region 2: Anne Paterson

Microbiology Department, Rotorua Hospital

Anne is the Convenor of the Communications Committee and is also one of the NZIMLS Representatives on the Massey University Board of Studies supervising the BMLSc course.

Region 3: Chris Kendrick

Department of Microbiology & Genetics; Massey University

Chris is a member of the Communications Committee and is responsible for public relations. Chris represents the NZIMLS on the Massey University Board of Studies supervising the BMLSc course.

Region 5: Les Milligan

Otago Regional Blood Service, Dunedin Hospital.

Les is Convenor of the Membership Committee. Les is also a member of the Education Committee and represents the NZIMLS on the Otago University Board of Studies supervising the BMLS course.

Executive Officer: Fran van Til

P.O. Box 3270
Christchurch
Tel/Fax (03) 313-4761

Journal Editor: Rob Siebers

Department of Medicine
Wellington School of Medicine

Standing from left to right: Leanne Mayhew, Maree Gillies, Les Milligan, Chris Kendrick, Anne Paterson.
Seated from left to right: Fran van Til, Paul McLeod, Dennis Reilly, Shirley Gainsford.

The Pacific Way

The Annual General Meeting of the P.P.T.C. was held on Friday, 2nd December, 1993. The President's Report is outlined below:

Activities of the Centre 1992/3

For the PPTC the significance of the year 1992/3 can be measured in a number of ways.

In addition to the training programmes held in Wellington the year has seen the completion of the first three year medical laboratory technicians training course at the National Hospital in Western Samoa.

The course which concluded in November, 1992 was a joint venture between the PPTC and the Western Samoa Health Ministry. The final examinations for the course were run by PPTC staff members and a certificate presentation function was held at the National Hospital. This was a colourful function attended by the Minister of Health for Western Samoa, the New Zealand High Commissioner for Western Samoa and the WHO Representative for Samoa and the Cook Islands. A second three year course began in February 1993 with an intake of six trainees.

Another milestone was reached in the Centres' teaching activities with the introduction of the first Pacific Island based short term training course. This was a two week workshop on quality control and quality assurance for the hospital laboratory technicians of the Fiji Islands and was held in Suva between 14-24 September, 1993.

The workshop was attended by sixteen participants and was designed to complement the PPTC Pacific Regional Quality Assurance Programme and the recently introduced Fiji National Quality Control Programme for Hospital Laboratories.

This course was carried out by the PPTC under a contractual agreement with the NZ Ministry of Foreign Affairs and Trade.

As a pilot project this venture proved very successful and has confirmed the view that in addition to Wellington based activities, the PPTC should on occasions have an "on site" training presence in the Pacific Islands. It is proposed that a similar course be run in Tonga in 1994.

The Pacific Regional Quality Assurance Programme remains one of the most important commitments of the Centre and this has continued through 1993 with satisfactory results.

In essence, 1992/3 has been a year of steady progress with some thirty-seven trainees involved in teaching programmes, older projects further extended or completed and new ones undertaken with success.

Finally the Management Committee of the Centre take this opportunity to acknowledge with thanks the friends and supporters of the PPTC who have made this possible.

ACKNOWLEDGEMENTS

The Management Committee of the PPTC are indebted to a number of organisations and individuals for ongoing support and encouragement. To the following the PPTC extend sincere thanks for greatly valued assistance:

The New Zealand Ministry of Foreign Affairs and Trade.
The New Zealand Ministry of Health.
Former Wellington District of Wellington Area Health Board.
The New Zealand Red Cross Society.
The New Zealand Institute of Medical Laboratory Science.
The Norman Kirk Memorial Trust.
CITEC Training Solutions Ltd.
The Royal College of Pathologists Australasia (QA Group).
John Ilott Charitable Trust.

The Management Committee of the Centre also wishes to acknowledge and thank the group of voluntary lecturers and advisors who have given so generously of their time and expertise during 1993.

Pacific Regional Health Laboratory • Quality Assessment Programme

The programme continues to operate in 1992 with the participation of seventeen of the region's laboratories. The laboratory of the L.J.B. Centre for Tropical Medicine in American Samoa joined the scheme during the year and the laboratory at Nauru will be invited in the near future. Unfortunately the laboratory at Kosrae has been dropped from the programme because its participation record was poor. (See chart for a record of participation).

In an attempt to encourage participants to improve their performance standards the replies from the Centre now contain a numerical scoring indicator which gives each laboratory a score for the current exercise, the score for their previous exercise in that subject, and the average score for all participating laboratories in the current exercise. In biochemistry, for example, the score reflects the number of analysis results that fall within the acceptable range of answers. The average score of all participants on topic by topic basis from 1990 to 1992 has been recorded. Although no particular trend is obvious it does seem that clinical biochemistry is the subject where most improvement is needed.

In 1992 the Centre, through the Clinical Biochemistry Quality Control Co-ordinator, Clare Murphy, introduced the "PPTC Clinical Chemistry QC Information Sheets". These were sent to all participating laboratories and were designed as easy to read notes on QC in clinical chemistry.

The Centre organised a two week training course in quality assurance and quality control in Fiji during September. This course was attended by sixteen technicians from local laboratories and some foreign students studying at the Fiji School of Medical Laboratory technology. It is intended to follow up this course with further courses on quality control in other venues in the Pacific.

During a visit to the Regional Headquarters of the World Health Organisation, Manila, the Centre Co-ordinator reported on the progress of the programme during 1993 and received complimentary comments from Dr. Sima Huilan, Regional Advisor of Health Laboratory Technology on the progress that many Pacific laboratories have made since joining the QC programme.

SUBJECT	AVERAGE PERCENTAGE SCORE					
	1990		1991		1992	
Biochemistry	50	55	56	62	66	61
Microbiology	82	70	98	90	73	86
Haematology	-	86	89	77	57	77
Immunohaematology	-	83	87	88	87	91

Participation of Laboratories in the Pacific Region. Quality Control Programme Surveys and Dates

Laboratory	I 8.92	B 9.92	M 10.92	H 3.93	I 4.93	B 5.93	M 6.93	H 7.93	I 8.93	Replies Surveys
Yap, FSM	X	X	X	X	X	X	O	O	X	7/9
Chuuk, FSM	O	X	X	X	X	X	O	X	X	7/9
Pohnpei, FSM	X	X	X	X	X	X	O	O	O	6/9
Palau	O	O	O	O	X	X	O	O	X	3/9
Solomon Islands	X	X	X	X	O	X	X	X	X	8/9
Niue	O	X	O	O	X	X	X	X	O	5/9
Vanuatu	X	X	X	X	X	X	O	X	X	8/9
Kiribati	X	X	X	X	X	X	X	X	X	9/9
Tuvalu	O	O	O	O	O	X	O	O	O	1/9
Tonga	X	X	X	X	X	X	X	X	X	9/9
Western Samoa	X	X	X	X	X	X	X	X	O	8/9
Cook Islands	X	X	X	X	O	X	X	X	O	8/9
Suva, Fiji	X	X	X	X	X	X	X	X	X	9/9
Lautoka, Fiji	X	X	X	X	X	X	X	X	X	9/9
Marshall Islands (PNG)	X	X	X	O	X	O	X	O	O	5/9
Port Moresby	O	O	X	X	O	X	O	O	O	3/9
Laos	X	X	X	X	X	X	X	X	X	9/9
Pago Pago	NS	NS	NS	NS	NS	NS	O	O	O	0/3
Replies/Totals:	11/17	14/17	14/17	13/17	13/17	16/17	10/18	11/18	11/18	114/156

X REPLY FROM LAB
O NO REPLY FROM LAB
NS NOT SENT

I = Immunohaematology
B = Biochemistry
H = Haematology
M = Microbiology

Executive Summary of a Mission Report

Author: Mr MJ Lynch. Places visited: Suva, Fiji Islands. Date of Mission: 14-24 September, 1993.

Objectives of the Mission

The author and Ms Claire Murphy of the Biochemistry Laboratory of Wellington Hospital acted as agents of the Pacific Paramedical Training Centre to conduct a workshop on Quality Assurance and Quality Control for laboratory technicians working in hospital laboratories in Fiji. The workshop was held from the 14-24th September, 1993 and Mr Derek Pamment and Mr Rajendra Singh of Fiji acted as local facilitators.

Summary of Activities, Conclusions and Recommendations:

The workshop was held in the training rooms of the Fiji Red Cross Society and was attended by eleven laboratory technicians from four Fiji hospitals and five participants from other Pacific Island countries who were at the time studying at the Fiji School of Medical Laboratory Technology for their Diploma. The workshop consisted of lectures, demonstrations and practical exercises designed to develop in each participant the knowledge and skills needed to construct quality assurance and internal quality control programmes in their own laboratory. All participants prepared contracts in which they detailed their quality assurance objectives for short and medium term time frames.

The PPTC staff will contact the participants at the end of 1993 to provide assistance where needed to help them overcome any difficulties in fulfilling the contract.

The PPTC will continue to send quality control specimens to the participants laboratories on a monthly basis between the months of March and October.

The laboratory at Kosrae hospital will be invited to rejoin the QC Regional Programme.

List of Participants.
Vika Atalifo, CWM Hospital
Abraham Miller, Kosrae Hospital, FSM
Semisi Lenati*, Tonga
Durendra Sami, CWM Hospital
Ambala Nair, CWM Hospital
Seulle Raymond, Vanuatu
Stella Driu, Lautoka
Nirup Kumar, CWM Hospital
Manorma Shah, CWM Hospital
Eikili Lesione, Labasa
Anaisa Veiqaravi, CWM Hospital
Ram Narayan, Labasa
Horton Sale*, Solomon Islands
Farhad Khan, Lautoka
Jwala Prasad, Lautoka
Mata Pepe, Cook Islands

**Sponsored by the NZ Red Cross Society*

Specialist Level Examinations 1993. Examiners' Reports

Haematology

General

The questions in the two papers were set to test the candidate's knowledge as specified in Paragraph 2.1 of the Syllabus for Specialist Certificate in Haematology. In broad terms, Paper 1 tested the candidate's breadth of knowledge, and most questions in this paper involved direct recalls; whereas Paper 2 tested the candidate's ability to understand, analyse and apply the knowledge to clinical situations.

Candidates for the Specialist Certificate will need to know something about the developments in technology and the sophisticated tests bordering onto esoteric in order to keep up with recent advances, but equally if not more important, the candidates need to have a firm base and detail knowledge in what they are doing, and to apply this knowledge to practical situations. Senior technologists are more and more involved in management and quality system, and knowledge in these areas are becoming more important. This year's examination questions were set with these in mind.

Specific comments on the examination questions follow. In general, though, several general comments can be made about the candidates' performance:

1. The knowledge of the subjects remains superficial in most cases. There is very little evidence that candidates have read carefully into the subjects, or if they have done their reading, that they have understood what they read. More worrying still, their answers to the questions suggest that the superficiality of knowledge is not just limited to the recent advances, but is true of their basic practice and the bread-and-butter of haematology.

2. Most candidates have not developed a systematic approach to answering questions, and is worrying if this reflects their pattern of problem-solving. Even taking the constraints of examination setting into consideration, many answers were at best haphazardly put together. Considering the time available for each question, especially for Paper 2, and what had been written, there should be enough time to organise the thoughts and presentation better.

3. Haematology has a close international network, and many aspects of haematology practice have been standardised internationally with accepted classifications, guidelines, protocols and standards. To keep up-to-date in haematology means to keep up-to-date with these international developments also. The answers to the questions, however, showed a general lack of familiarity with internationally accepted standards, protocols and definitions in Haematology amongst the candidates.

4. A few candidates tended to trade the basic and common for the sophisticated and rare. The latter will impress, but only when the pertinent basic facts and common conditions have been covered. The examiners are not looking for minute details of the basics at the Specialist level examination, but there should be sufficient evidence that the basic and useful have been considered before moving onto sophisticated and useful. Very often there is no such evidence in the answers, and the impression from reading the scripts is that the candidates had not considered what is relevant and useful, but just relayed back something they read recently. Again, this probably reflects the superficiality of knowledge into the subject.

Paper 1

Question 1

Seven candidates achieved 50% or better.

In general well-answered with most candidates emphasising the Quality Control aspects of Q.A. but neglecting other aspects such as specimen handling and record keeping.

Question 2

This Question and Question 3 were designed to test candidates' knowledge and understanding of generally accepted international reference methods and quality control.

Four candidates achieved 50% or better.

All candidates were able to define accuracy and precision.

No candidates knew what NCCLS is although two knew it was involved in setting laboratory standards and procedures.

Four candidates knew what ICSH is and seven knew it was involved in describing reference methods.

All candidates knew TELARC provided national laboratory accreditation.

The questions on delta checks was answered very superficially with only two candidates receiving full marks.

Question 3

This question on reference methods was disappointingly answered. No candidate achieved 50%.

NCCLS and ICSH reference methods were mentioned by only a couple of candidates.

Only one candidate was familiar with internationally accepted reference methods and even this candidate did not know the reference method for white cell differential — even though this had been specifically mentioned in last year's examiners' report.

Eight candidates mentioned the microhaematocrit as the reference haematocrit but no one mentioned whether or not trapped plasma should be included.

Only three candidates had an understanding of how calibrator values are obtained — there seemed to be confusion with controls here.

Question 4

This was a set of results and a photomicrograph from a patient with HbH disease, post transfusion.

Three candidates achieved 50% or better.

Despite being told the patient had been transfused only four candidates mentioned a dimorphic picture. Most candidates mentioned the other morphological features adequately.

Five candidates mentioned the sought-after possible diagnoses: iron deficiency and/or thalassaemia/haemoglobinopathy.

Four candidates mentioned iron studies and haemoglobinopathy screen as useful laboratory tests in the immediate post-transfusion period. No one mentioned globin chain synthesis or molecular studies for thalassaemia.

Only three mentioned the prevention of unnecessary iron treatment as a reason why a correct diagnosis was important.

Question 5

No candidate achieved 50% in this question.

This question was included because ACD is one of the most common anaemias seen in the laboratory. There have also been several articles in the literature about this condition. See review article in Blood, Vol 80, No 7 (October 1), 1992: pp1639-1647.

Despite this, only one candidate seemed to have done any recent reading on ACD. Only one candidate mentioned the main points in the definition of ACD. Several candidates were under the impression that the anaemia of renal disease was an ACD. Recent evidence on the pathogenesis of ACD was not referred to by most candidates with only two candidates mentioning the involvement of cytokines,

although seven mentioned impaired release of iron. Three candidates mentioned that rh EPI has been used for treating some ACD's.

Question 6

No candidate achieved 50% in Question 6 overall.

(a) Once again this is a topic which has been written about recently and is a subject a Specialist candidate should have some knowledge about even though it is a parameter many laboratories do not report. See Blood Reviews (1993) 7, 104-113.

Five candidates mentioned technical difficulties such as small red cells interfering with the platelet count and therefore the MPV. This was not the required answer although candidates did receive some marks for this because the question may have been ambiguous. The required answer included the factors: type of anticoagulant, type of analyser, temperature, and age of specimen. One candidate mentioned all these factors.

(b) The causes of thrombocytopenia in pregnancy have also been the subject of recent articles. See the review article in Blood, Vol 80, No 11 (December 1), 1992: pp 2697-2714.

Many of the causes of thrombocytopenia in pregnancy are of course unrelated to the pregnancy but there are some which are unique to pregnancy e.g. pre eclampsia or GPH, ITP (7), eclampsia (7) and DIC secondary to infection (5) were the most commonly mentioned. Lupus was mentioned by 4 candidates and one mentioned HUS but no one mentioned Type IIb v WD, drugs, haematological malignancies or other causes of DIC such as amniotic fluid embolism, placental abruption, uterine rupture.

Question 7

(a) This part tested understanding of the laboratory criteria for the diagnosis of LA which was defined by the International Society of Thrombosis and Haemostasis. Only one candidate was able to list all three criteria and of the remaining candidates only three managed to name two criteria. Most candidates listed an abnormal correction mix with normal plasma but in association with a specific test, most commonly the APTT.

(b) Laboratory distinction between LA and a factor inhibitor is crucial to the clinical management of the patient, therefore it is disappointing that only two candidates correctly listed both tests and of the remaining candidates seven listed neither.

(c) The majority of candidates were able to score the 2½ marks.

Question 8

(a) Majority of candidates were able to score two marks.

(b) This question was designed to evaluate the candidates' background reading on a topical subject. Most candidates were able to easily list nine tests with only two candidates showing extra knowledge from background reading.

Question 9

(a) Only one candidate correctly placed the factors in their proper order. Factor XIII seemed to be causing the most problem.

(b) All candidates correctly listed the factors but only three candidates achieved the correct order while three of the remaining candidates correctly placed Factor VII first with the shortest half life (two candidates incorrectly listed Protein C and Protein S as vitamin K dependent procoagulant proteins).

A disappointing performance by candidates of knowledge fundamental to interpretation of coagulation screens.

(c) Most candidates demonstrated knowledge and application of the test.

Question 10

This was on average a poorly answered question and the answers showed a lack of comprehension of the commonest coagulation terms and units. The PR was given as the Patient PT/Control PT by several candidates, while no candidate seemed to know that IU/L was derived from international standards.

Question 11

This question again demonstrated a lack of background reading on a topical subject with the majority of candidates only able to fill in half the table.

Question 12

This question tested the candidates' ability to plot information correctly, deduce the half life from the information and use this to predict when the Factor VIII would be at the required level. Four candidates were able to plot the graph while four candidates did not attempt the question. Only one candidate correctly "deduced" the time from the graph but without showing how this was arrived at.

Question 13

This question in general was answered satisfactorily. In answering the classification of polycythaemia, some candidates still did not get the terminology of true and relative polycythaemia correct.

Question 14

The FAB document on the classification of chronic lymphoproliferative disorders with leukaemic component is already five years old. This international document contains all the information required to answer this question which relates to aspects of one of the most common haematological disorders seen in clinical practice; or to the less common but well known haematological malignancies. Although not all candidates will have the opportunity to work with cell markers or electron microscopy, a little bit of reading will enable them to answer this question. It is therefore disappointing that this question in general was answered poorly. All but one candidate were not able to define the CLL-mixed type which, the examiner expects, they will have encountered in their haematology work.

Question 15

Myelodysplastic syndrome is first suspected from quantitative and morphological findings in the peripheral blood. These have been well described in the original FAB document on the myelodysplastic syndrome and also in numerous subsequent review articles and in textbooks. It is astounding therefore that Part (a) was answered poorly in general.

Most candidates know the FAB subtypes of myelodysplastic syndrome, and they were able to describe the bone marrow changes in this condition. A few actually answered Part (b) of the question by describing the five subtypes. It is, however, not the intention of this question which is to look for evidence that the candidate knows why bone marrow examination is necessary in a patient with blood picture suspicious of myelodysplasia. Most candidates failed to appreciate that the bone marrow examination is required to differentiate between myelodyplastic syndrome and acute leukaemia.

Question 16

Most candidates seemed to have the basic concept of how the body deals with haemoglobin released intravascularly, but it was not clear from their answers to Part (a) that they knew the relative importance of the different body mechanisms in dealing with intravascular haemoglobin.

Part (b) was answered very poorly. All candidates haphazardly listed the results of tests without considering the types of evidence they will look for in suspected haemolysis.

Very few candidates know how to interpret the abnormal results of the basic, time honoured red cell osmotic fragility test covered in Parts (c) and (d).

Question 17

Similar to the red cell osmotic fragility test, HbA2 and HbF quantitations are basic haematological tests in the "Special Haematology" category, and a technologist with Specialist qualification should be able to interpret the results of the haematological problem, with the changing population demographics, the problem and hence the diagnostic need will increase. It is therefore disappointing that a good number of candidates were still not able to answer Parts (a) and (b) satisfactorily; and no candidate was able to score mark for Part (c) and (d).

Parts (3) and (f) are not straightforward cases — straightforward cases are for the basic certificate, but they are actual cases; and the answers can be arrived at with knowledge of causes of increased HbF in Part (e), and the observation that HbA is not present in the cord blood in Part (f). Once the answers are known, the results of the tests all make sense; but in the laboratory we have to put the pieces together to come to an answer, not the other way round, and one purpose of the examination is to make sure that candidates are competent in this problem-solving process.

There are six parts to this question, but Parts (a) and (d) involve straight recall, requiring literally only the time to write down the words to answer the parts. The candidates therefore should still have enough time to do their thinking and score the marks for the more difficult parts of the question.

Question 18

Of the true medical emergencies. P. falciparum infection is one — and also one which can present in protean ways. Often it is the responsibility of the Haematology Laoratory to diagnose malaria and raise the suspicion of this serious infection. Most candidates were able to describe the morphological diagnostic features for falciparum infection, but most candidates also failed to demonstrate that they know the details of preparing suitale blood smears for malaria diagnosis and how to use the different types of smears.

Question 19

Health and Safety in Employment Act affects everybody in the Haematology Department. and the relevant government office has actually advertised the elements of hazard management in the media. But this question was answered very poorly and most candidates were obviously not aware of the basic elements of this Act. Marks given to most candidates were for their successful guessing rather than for demonstrating any level of knowledge of what affects them in their real life.

Question 20

The above remark also applies to the Accident Rehabilitation and Compensation Insurance Act 1992. The examiners assume that as good employers, the Hospital/Department/ Supervisors will have drawn the laboratory staff attention to these changes in legislations and have relevant literature available, so the conclusion has to be that the candidates have not adequately prepared the relevant part of the syllabus for the Specialist Certificate adequately.

The level of knowledge in safety procedures and equipment demonstrated in the candidates' answers is generally poor.

Paper 2

Question 1

(A) Near Patient Testing — The question was answered very competently by one candidate but it was disappointing that although it was obvious there was some background reading no references were acknowledged.

(B) Haematology analyser with 5-part white blood cell differential — Eight candidates answered this question on assessing the ability of a haematology analyser to detect morphological abnormalities and the factors which would influence their decision as to which specimens would require blood film examination with or without a manual differential.

This question was set to test candidates' appreciation of the factors involved, both technical (evaluation of the analyser), clinical (patient particulars) and managerial (time, staffing, cost restraints).

Only one candidate gained more than 50%.

Although candidates generally covered the main points, for 25 marks most answers were too superficial.

It was surprising that only four out of the eight attempted to comment on the differences between a private/ community laboratory and a general hospital laboratory although this was specifically requested.

Question 2

(A) Construction of a laboratory method sheet — Seven of the ten candidates chose this question. Most answers were adequate; however. all candidates failed to state the source of their information and the impression from marking the scripts was that with the exception of two candidates, the answers were drawn from the candidates' own laboratory practices (and perhaps from recent experience with TELARC) and not from background reading. The handling of results was on the whole well addressed with the important exception of when to let the clinician know by telephone of abnormal results. Most referred abnormal results to a senior person, however, this does not cover out-of-hours work when senior people are not available.

(B) Principles of functional and immunological assays used in the evaluation of haemostatic components — no candidate attempted this question.

Question 3

Four candidates answered this question.

It is the examiners' view that the blood film is still a vital part of the haematology laboratory service. Therefore technologists who will be teaching and supervising in the future must be adequately trained and experienced themselves.

This question was answered well by two of the four candidates, one almost gained 50% and the other candidate gained very poor marks.

Question 4

The question was answered by two candidates. Neither candidate fully addressed the paper's shortcomings and failed to demonstrate knowledge of current issues in the area of lupus anticoagulant testing. Again there were no references in support of statements or conclusions.

Question 5

The FAB classification of acute leukaemias was first published in the 1970's, and over the years it has been refined and elaborated. Precision of its definitions of subgroups of acute leukaemias, arbitrary though they may be, is one of its strengths and the FAB group has laid down for the international haematological fraternity a simple guideline for the diagnosis and subclassification of acute leukaemias using morphology supplemented by minimal special investigations.

All candidates have some idea about the classification. Most candidates were able to get the names of the subtypes, especially of the acute myeloid leukaemias, right, although a few candidates still could not give all the precise names used in the FAB classification. Most candidates, though, did not have the details for subclassifying, and failed to give the criteria for defining especially M2 (acute myeloid leukaemia with differentiation), M4 (acute myelomonocytic leukaemia) and the subtypes of M5 (acute monocytic leukaemia). Very few candidates got the FAB definition of M6 (erythroleukaemia).

A lot has been written in journal articles and haematology textbooks about the advantages and disadvantages of using the FAB classification. Candidates only needed to recall what they have read, and they did not really need to synthesise and present their arguments. Even this part of the question, though, was ill-presented and lacked substance.

If this reflects the tendency in some centres to move away from the morphological classification and use more sophisticated techniques to define and describe acute leukaemias, hence the candidates becoming less familiar with the morphological criteria, this trend has not been reflected in the subsequent discussion of the role of the laboratory in diagnosing and monitoring acute leukaemias. Most candidates were able to name a few special tests used, but very few candidatse demonstrated that they had considered the question of why a certain test was done.

Overall, with a few exceptions, the answers are only brief and lack details with no evidence that the candidates

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have read appropriately nor thought through the subject.

Question 6

This question asked about a very common situation encountered in the day-to-day practice. All were able to name deficiency type of megaloblastic anaemia and liver disease, a few added hypothyroidism and reticulocytosis as causes of macrocytic anaemia. The list of macrocytic anaemia then virtually stopped there. Absolutely no one mentioned spurious macrocytosis which may complicate medical conditions that can be associated with anaemia.

Most candidates were able to describe with varying accuracy and detail the biochemical basis of megaloblastic anaemia. In fact if the question were about megaloblastic anaemia, a few of them would have scored very good marks; but that was not the intention of the question. The question is to test whether the candidate has considered a very common situation that he/she will have encountered in the daily practice, and his/her ability to develop a systemic approach to analysing the problem from basic principle, and to consider what further information will be required to resolve the problem. The information required to answer this question can be easily obtained in all haematology textbooks, though not necessarily in a "model answer" form and will require a bit of synthesis. Unfortunately most candidates failed to score on these counts.

No candidate stated explicitly that macrocytic anaemia can be associated with either normoblastic or megaloblastic erythropoiesis. Further classificaton and discussion of pathogenesis of and investigations for macrocytosis really start from this crucial distinction on the type of erythropoiesis. Without this basis, and without a system of approaching the problem from the pathogenetic basis, the answers became a haphazard regurgitation of points which came to the candidate's mind at the time of the examination.

Transfusion Science

General

Two candidates sat the examination, both gaining a pass. Some questions in both papers were well answered and others were well below standard. It was however pleasing to note that work topical to the NZ scene and published in the NZ J Med Lab Sci was being read, but it was disappointing that two questions which drew on 1993 publications in Vox Sang, were poorly answered. While candidates had gone to a lot of trouble to understand the exotic, once again, there was a clear lack of understanding of the basics. We would like to emphasise the need for candidates to have a solid understanding of the basics before attempting this examination. References from which the questions and answers were derived are listed for each question.

Paper 1: The paper consisted of six questions of which two practically orientated questions were compulsory and any three of the remaining 4 questions could be answered. Each question was worth 20 marks.

Question 1

This question was compulsory and was recycled from the previous year as it had been so poorly answered. It was pleasing that both candidates answered this question well with an average mark of 14/20. Refs: 1992 Specialist examination, *NZJ Med Lab Sci* 1992;46:73-75.

Question 2

This compulsory question was poorly answered by both candidates who failed to display the depth of knowledge and understanding expected of a Specialist and tended to pad out their answers with information unrelated to the question. Average mark 8½.

Question 3

Both candidates answered this question very well with an average mark of 18/20 Refs: *NZJ Med Lab Sci* 1993;47:29, *NZJ Med Lab Sci* 1992;46:140, *Transfusion Medicine Reviews* 1990;4:265-275, *Transfusion Medicine Reviews* 1990;2:85-143.

Question 4

The only candidate to attempt this question produced an answer which would have been barely adequate at Certificate level. A Specialist in any subject must have a thorough knowledge of the basics. Refs: Methods of Immunohaematology — John Judd. *Transfusion* 1993;33:284-293. *Immunohaematology* 1992;8,No.3: 53-57.

Question 5

Both candidates answered this question satisfactorily. Average mark 12. Refs:Applied Blood Group Serology 3rd Ed, *Immunohaematology* 1988;4:19-22.

Question 6

One candidate attempted this question and demonstrated a very poor understanding of this important technology. Refs:TSSIG Audio-cassette tape 0491, *Immunohematology* J 1990;2:30-37, *Immunohematology* J 1988;4:75-78, *NZ J Med Lab Sci* 1991; 45:114-116, *Vox Sang* 1993;64-99-105, *Vox Sang* 1991;61:255-257, *Vox Sang* 1993;64:161-166.

Paper 2: The paper consisted of 10 compulsory questions each worth 10 marks.

Question 1

One candidate demonstrated a good understanding of the two lesser known serological techniques while the other had only a smattering of knowledge in this area. Refs: *Transfusion Medicine Reviews* 1991;V:60-72, *Immunohaematology* 1990;6:12-17, *Transfusion Medicine Reviews* 1992;VI:26-31.

Question 2

This very topical question was answered well by both candidates with an average mark of 8. Refs: *Transfusion* 1990;30:207-213, *Transfusion* 1990;30: 193-195, *Vox Sang* 1991; 61:18-23, *Vox Sang* 1993;65:42-46.

Question 3

This was a relatively difficult question and was very poorly answered with an average mark of 1½. Refs: ASBT consensus-guidelines for the use of intravenous immunoglobulin (IVIg), *Transfusion Medicine Reviews* 1991;3: 165-170, *Vox Sang* 1993;64:65-72.

Question 4

Both candidates merited a pass in this question. Average mark 5½. Refs: *Immunohaematology* 1992;8, No4:87-93, *Vox Sang* 1984;46:286-290, *Vox Sang* 1981;40:252-357, *Applied Blood Group Serology* 3rd Ed.

Question 5

A relatively easy question which required an answer greater than would be expected of a Certificate candidate. Both answers were of the latter level with an average mark of 5. Refs: *Vox Sang* 1991;61:76, *Mollison and Applied Blood Group Serology,* 3rd Ed..

Question 6

Two very good answers with an average mark of 8½. Refs: *Vox Sang* 1993;64:1-12; *Transfusion Medicine Reviews* 1988;2:235-244, *Transfusion Medicine Reviews* 1990;4:257.

Question 7

Both candidates struggled to achieve a pass in this question and had somewhat unusual concepts of S^u. Average mark 5. Refs: *Vox Sang* 1992;63:122-128, *Transfusion* 1992;32: 834-837, *Applied Blood Group Serology,* 3rd Ed.

Question 8

A well answered question by both candidates with an average mark of 7½. Refs: *NZJ Med Lab Sci* 1991;47:30-31, *NZJ Med Lab Sci* 1993;47:70.

Question 9

Extremely disappointing answers to a question about what could be considered the most significant developments in the ABO system for 90 years. Average mark 1½ and our condolences to the late Landsteiner. Refs: *Transfusion* 1990;30:671-672, *Vox Sang* 1993;64:116-119, *Vox Sang*

1993;64:120-123, *Vox Sang* 1993;64: 171-174, *Vox Sang* 1993;64:175-178, *Nature* 1990;345:229.

Question 10

A management based question which was poorly answered, average mark 5. Refs: *Transfusion* 1993;33:558-561 + standard management notes.

Clinical Biochemistry

Paper 1

Question 1

Adaption of a HDL method to automation. Attempted by two candidates. Both passed, one answer was excellent, the other a close pass. Problem areas were the calculation and the method modification for maximum economy on an automated system. Neither candidate opted for maximum economy.

Question 2

Blood gas analyser. Attempted by two candidates. Both passed, one answer was excellent, the other good. One candidate identified deproteinisation as an important step in the maintenance programme but did not include it in the steps needed to overcome the symptoms described, which were due to protein build-up.

Question 3

Drug monitoring. Attempted by three candidates. All passed. The principle of an analytical method for lithium was very poorly presented and was probably the weakest section of the question.

Question 4

Faecal fat/xylose. Attempted by three candidates. All passed, one well, two narrowly. Again method descriptions and principles were not clearly presented.

Question 5

Patient with hyperkalaemia and hypoglycaemia. Attempted by two candidates. Both had good passes. Interestingly both candidates identified the most common reason for the results would be factitious, neither emphasised QC review as a major part of the validation of the results.

Question 6

Catecholamines. Two candidates attempted this question, both passed well.

Question 7

Costing of tests. Attempted by one candidate who obtained an average pass. Not well answered with only the basics covered. The example costing asked for had no real or imaginary figures attached to it.

Question 8

Calculations. Attempted by three candidates. All passed. These were routine laboratory calculations and the results were expected to be correct. Two candidates received top marks.

Question 9

Atomic absorption. Attempted by two candidates. One excellent pass, one failure. This technique falls into the significant older technology present in most laboratories and should still be well understood.

Question 10

Enzymes. Attempted by three candidates. All failed. This question was very poorly answered. The fact that it was the final question in this paper may have some bearing on the quality of the answers otherwise some work needs to be done in this area.

Paper 2

Question 1

Hypokalaemia. Attempted by one candidate, a good pass achieved. This was well done by the single candidate who attempted it, but the effort tapered at the end of the question. Maybe the time was getting tight for the candidate.

Question 2

Immunoglobulins. Attempted by one candidate, an adequate pass achieved.

Question 3

Principles of gas chromatography. Attempted by one candidate. A good pass achieved.

Question 4

Off site laboratory instrument. Attempted by three candidates. Two passed. Areas such as staff training, procedures for operation, work sheets to ensure adequate documentation, and the provision of backup services were somewhat overlooked. Quality control programmes and maintenance programmes were well covered.

Question 5

Measurement of sodium by flame and ISE. Attempted by three candidates, two good passes, one close fail. Some confusion over the specificity of ISEs. Nobody mentioned selectivity ratios and one candidate talked about ion specific electrodes which is a misnomer. The principle of flame emission was not well understood by any candidate, probably reflecting its diminishing role in the clinical laboratory.

Question 6

Liver function tests. Attempted by three candidates. All three gained good passes.

Microbiology

Candidates: 6; Passed: 4; Failed: 2

Paper 1: Divided into 2 sections, each of 6 short questions to cover the candidates knowledge.

Question 1

Differentiation of strongyloides and hookworm lavae. 5 marks Average 3 marks for 5 candidates — the remaining candidate scored 0.5 marks.

The differentiation of the lavae was mainly well handled, but no candiate fully appreciated the longer term seriousness of infection with strongyloides stercoralis.

Question 2

Brief notes on erythrasma/trichomycosis/pityriasis 5 marks Average 4.25.

All candidates did well on erythrosnia and pitynasis — no one attempted trichomycosis axillaris.

Question 3

Accreditation requirements. 10 marks Average 4.5. 3 candidates scored 5 or greater. With the increasing demand for total quality management in all areas only two candidates appeared to have some realistic knowledge of the TELARC requirements for laboratory registration.

Question 4

E coli 0157/H7. 10 marks Average 5.0.

Scant knowledge of role of E coli 0157/H7 as an enterohaemorrhagic strain with potential sequlae of haemolytic uraemic syndrome in youngsters or death in elderly groups. Very limited knowledge of Sorbitol — MacConkey agar as selective medium.

Question 5

Tb. Average marks 4.0.

This subject has been a high profile one recently and candidates generally well aware of the epidemiological features of tuberculosis. However virtually all candidates failed to grasp the point of the rest of the question by proceeding to discuss Bactec cultural techniques when non-cultural techniques for rapid diagnosis was asked for. Only one candidate mentioned acid fast stains. There was generally a lack of knowledge of the alternative procedures available for decontamination of specimens and available media. Poor performance in this question may have been due to poor exam technique rather than lack of knowledge of the topic.

Question 6

Listeria. Average marks 10.5.

Listeriosis is another disease that has had considerable coverage recently in the Press and consequently awareness of this topic was reflected by most candidates demonstrating good knowledge of the epidemiological aspects of the disease. However, knowledge of techniques to facilitate optimal isolation of the organism was limited.

Paper 2

Question 1

MRSA. Marks 20. Average 10.

With 1992 showing a continuing increase in the number of cases of MRSA and the emergence of MRSA in the community as well the CDC "Guidelines for the control of MRSA in NZ". January 1992 should have been

compulsory reading for all microbiology personnel.

Candidates did not express well laboratory methods that would be "effective and efficient" and confirmation of a methicillin disc resistant staph. aureus was not considered necessary, or worthy of putting in the answer, by 4/6 candidates.

Only 1 candidate had a good understanding of the procedures necessary for the nursing staff and patient care.

Question 2

Chlamydia diagnosis. Marks 20. Average 8 (5 candidates).

The number of specimens to be examined was set at the stated number to remove culture as a prime choice for screening and as two candidates mentioned, PCR was not yet fully available at a reasonable cost. That did not stop 3/5 candidates devoting some time to the technology of PCR or the details of the culture.

3/5 did not grasp the importance of confirmatory assays for any reactive EIA reaction.

Question 3

Therapeutic drug monitoring. Marks 20. 1 candidate 1 mark. This was not a question on MIC.

Question 4

Bacterial meningitis. Average marks 10.

All except one candidate demonstrated a good knowledge of the common bacterial pathogens involved in meningitis and the procedures required for diagnosis. However, most did not seem to understand the limitations of antigen detection.

Question 5

Fastidious gram negative bacilli. 9 marks. Average 5.5

Quite well answered on the whole but two candidates took refuge in the statement "identified by typical biochem reactions" without further elaboration. (They did not score that well!).

Question 6

Brief notes on Hepatitis D/HDV/VZ/Rotavirus. 10 marks. Average 5.6.

Marks reflect lack of knowledge of association of these viruses with specific disease processes.

Question 7

Brief notes on 4 organisms. 10 marks. Average 4.5.

Candidates knowledge of some of less common organisms that may be encountered in the laboratory was somewhat patchy.

Question 8

Pneumocystis/CAP fluid. 6 marks. Average 4.5.

Generally well answered.

Question 9

Yersinia enterocolitica. 10 marks. Average 3.

Most candidates demonstrated limited knowledge in techniques required to effectively isolate and identify this organism.

Question 10

Antimicrobial sensitivity testing — anaerobes. 8 marks. Average 3.5.

Although sensitivity testing of anaerobes is not usually a routine procedure in the average laboratory there should be an appreciation of when and how to test. Three of the candidates managed to show an adequate knowledge of this topic.

Question 11

Antibiotic action. 9 marks. Average 4.0.

There has been considerable interest in these antibiotics over the past few years but except for one candidate that answered the question well there was a failure to understand either the mechanism or their range of activity.

Question 12A

Emerging resistance S. pneumo/H. influ. 8 marks. Average 3.5 (5 candidates).

Two candidates answered this question well, others failed to mention geographical origins of resistant strains and the non-b-lactamase producing amoxycillin resistant H.influenzae.

Question 12B

B-lactamase +ve N. gonorrhoeae. 8 marks. Average 5.0 (1 candidate).

Quite well answered by the one candidate that attempted this question.

Publications in Overseas Medical Laboratory Science Journals

We exchange journals with various overseas medical laboratory science associations. These journals are kept in the Philson Library of the Auckland Medical School. Members wishing to obtain copies of articles of interest should forward their requests through their own institution's medical library via the Interloan Service.

Canadian Journal of Medical Technology. 1994; Volume 56: Number 1

A case of multiresistant Mycobacterium tuberculosis. D Gopaul, A Chagla, T Wood, et al. p.18-19.

Report of survey: pregnancy outcomes in medical laboratory technologists. MG Torchia. p.20-29.

The use of a multi-test MOT disc for the identification of Escherichia coli as a cost-containment strategy. T Korver, HM Bojeski. p.30-34.

Creutzfeldt-Jacob disease decontamination of tissues and contaminated materials. WG Ozanne. p.35-38.

Hodgkin's disease presenting as severe refractory microcytic hypochromic anaemia. WF Brien, MJ Inwood, S Thomson. p.39-40.

Australian Journal of Medicine Science. 1994; Volume 15: No 1.

Changing criteria in the assessment of human semen. KL Harreison. p.1-3.

The laboratory measurement of iron status in women by vector analysis. S Gardner, CH Mansfield, H Meyle, J Richards, R Thomas. p.4-8.

Beliefs of pathology laboratory personnel about new patient-testing. M Nolan, A Brownslea. p.9-13.

A comparison between monoclonal and polyclonal assays of luteinizing hormone in polycystic ovary syndrome (PCOS). S Tahanfar, DK Garrett, JA Eden. p.14-17.

Acquired vitamin K defect: super warfarin poisoning. C Solano, I Mazlin, D Scott. p.18-20.

Diagnosis of cervicofacial actinomycosis by fine needle aspiration cytology. W Nespolon, C Moore. p.21-22.

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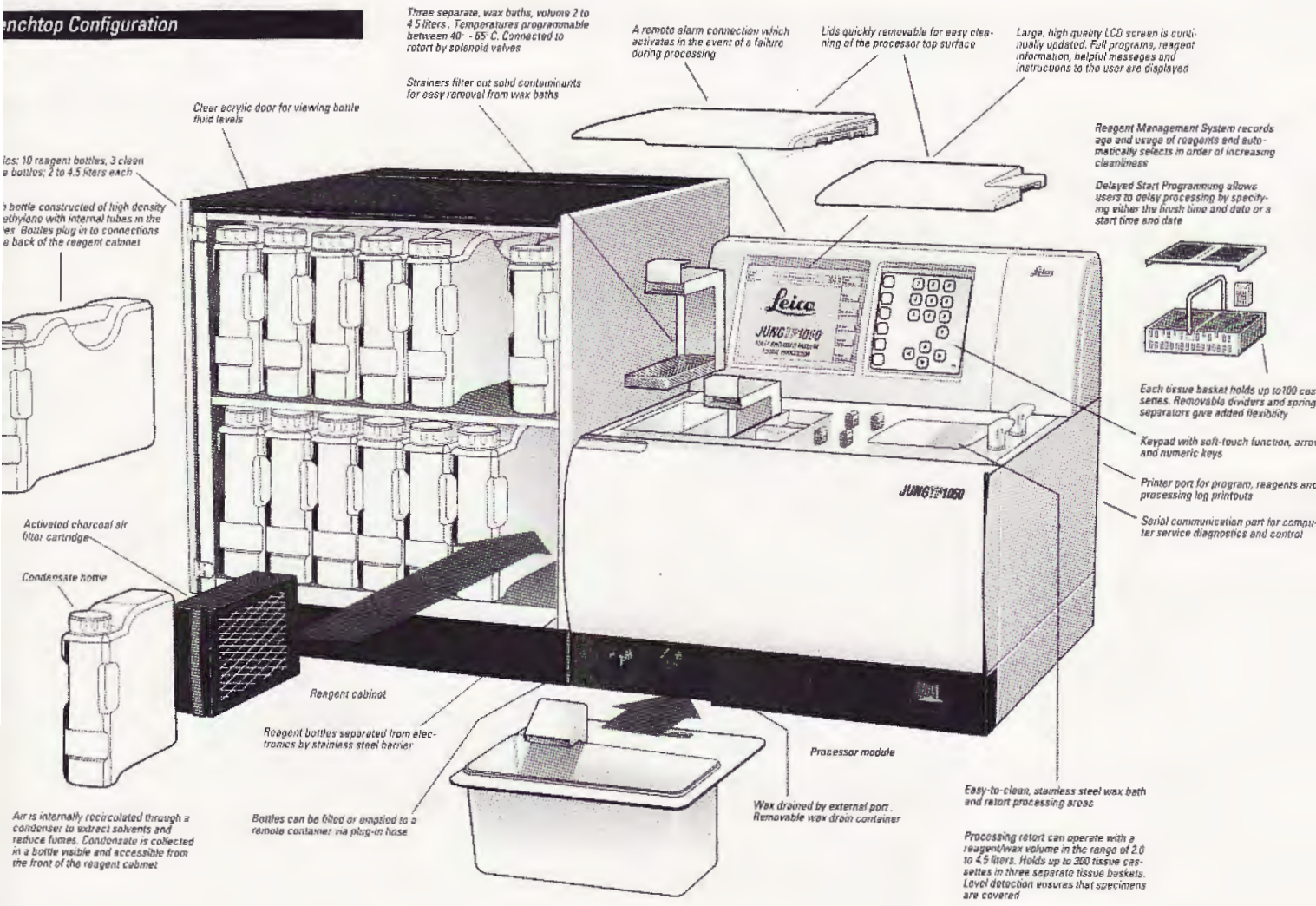

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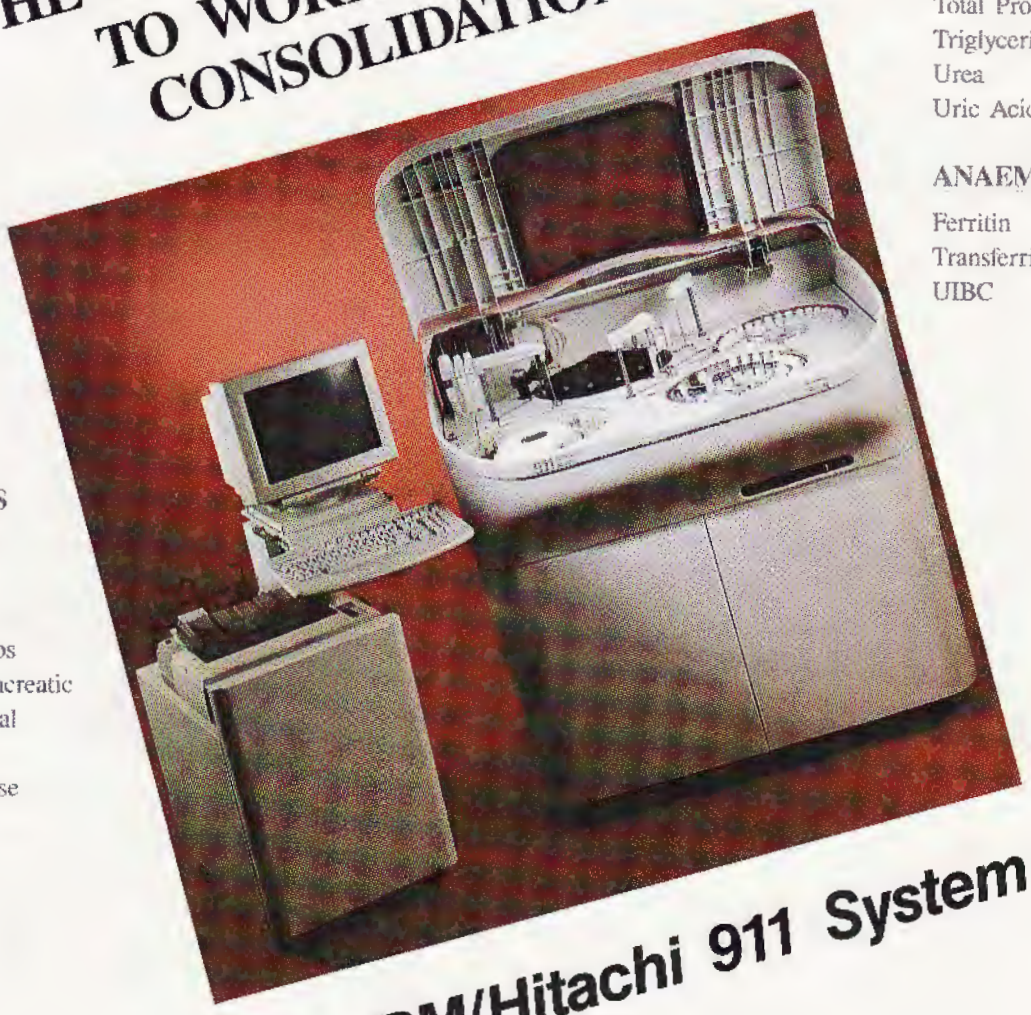

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