Vol 47. No. 2, May 1993

ISBN 1171-0195

NEW ZEALAND JOURNAL OF

MEDICAL LABORATORY SCIENCE

OFFICIAL PUBLICATION OF THE
NEW ZEALAND INSTITUTE OF MEDICAL
LABORATORY SCIENCE INCORPORATED

DIESSE VES-MATIC ESR SYSTEM

Do you want to perform ESR's with the maximum safety features and in the minimum amount of time?

Behring Diagnostics (A division of HOECHST N.Z. LTD) are the exclusive distributors of the Diesse Ves-Matic ESR System which covers all laboratories from one ESR per day with the Manual Ves-Rack, to those laboratories performing 1000 ESR's per day with the fully automated Ves-Matic 20 and 60 Systems.

The features of the Diesse Ves-Matic Systems are:

•Separate evacuated collection tube used for testing • Only one ml of blood required • Safe handling and disposal • Twenty minute assay time on automated systems and thirty minutes on the manual Ves -Rak.
• Paperless ESR System with "on-line" ability on the Automated Ves-Matic 20 and Ves-Matic 60 Systems
• "Walk away" - automatically mixes and reads samples and prints results.

BEHRING
H. Behring

For more information on the Diesse ESR system please contact Behring Diagnostics (Hoechst NZ Ltd) Telephone 09-570 0702

DIESSE

CPA 2574

NEW ZEALAND JOURNAL OF
MEDICAL LABORATORY SCIENCE

VOL. 47 No. 2 MAY 1993 ISSN 1171-0195

TABLE OF CONTENTS

Original Articles

Subscriptions to the Journal for non-members requiring delivery in New Zealand is $NZ33.00 for 1 year surface mail paid. Single issues are $NZ12.00 surface mail paid.

Subscriptions to the Journal for non-members requiring delivery overseas is $NZ39.60 for 1 year surface mail paid. All subscriptions except for single issues are due in February.

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, Vol. 45, No. 4, page 108 to 111 or from the Editor.

Intending contributors should submit their material to the Editor, M. Gillies, Microbiology Laboratory, Auckland Hospital, Auckland, New Zealand. 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 copy or blocks 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 1993 are March, May, August and November.

NEAR PATIENT TESTING

RECOMMENDED GUIDELINES FOR HOSPITALS AND GENERAL PRACTICE

BY

NEW ZEALAND INSTITUTE OF MEDICAL LABORATORY SCIENCE

AUGUST 1992

To be presented for adoption at the 1993 Annual General Meeting of the NZIMLS.

INTRODUCTION

The supervision of health professionals involved in medical laboratory technology, which includes procedures involved in Near Patient Testing, is the responsibility of medical technologists and medical practitioners as set out in the Medical Laboratory Technologists Board's Regulations. The MLTB interpretation of supervision is currently under review.

The New Zealand Institute of Medical Laboratory Science has developed a set of protocols, to use as guidelines, for both medical technologists and medical practitioners involved in the supervision of Near Patient Testing being carried out either within a hospital or general practitioners office.

Within a hospital, the responsibility of the supervising medical practitioner needs to be clearly established by the hospital management. Equally, general practitioners in private practice need to be aware of their responsibilities.

Such testing can range from dry chemistries such as the "test strips" used for urinalysis and blood glucose assays, to solid state electronic equipment for measuring blood gases, electrolytes, glucose and haemoglobin.

When laboratory testing is performed in wards or clinics (near patient testing) it is important that:

1. Analyses are performed to a standard that benefits patient care by having in place:
   — appropriate quality control procedures
   — staff training programmes
   — equipment maintenance programmes
2. The results obtained are clinically comparable to those obtained for the same test in the laboratory.
3. Unnecessary duplication of laboratory tests and services is avoided.
4. Experienced individuals are responsible for the purchase of equipment for near patient testing.

The laboratory is best placed to ensure that these standards are met, and hence it is important that close liaison is maintained between appropriate senior laboratory staff in wards or clinics involved in near patient testing.

The following guidelines are therefore recommended when performing Near Patient Testing.

POLICY

Duplication of equipment and services should be avoided by providing an effective laboratory service at all times.

Near patient testing requires the close liaison of appropriate laboratory staff regarding the provision of the assay, purchase of equipment, operation, training, quality control and maintenance.

GUIDELINES FOR HOSPITALS

1. **Consultation**
   Consult the appropriate senior laboratory staff when any near patient laboratory testing is planned.
   Avoid duplication of services.
   Justify near patient testing on a cost effective basis or by the demands of patient care.

2. **Purchase and Selection of Equipment**
   Collaborate with laboratory staff on the selection and purchase of laboratory testing equipment and materials for use outside the laboratory.
   Use the guidelines for selection and evaluation of laboratory equipment normally used by the laboratory.
   The analytical results of near patient testing equipment should be as similar as possible to those of the equipment used in the laboratory.
   The laboratory may involve other units (eg scientific and information centres) in the evaluation of equipment.
   Involve other appropriate units for the provision of suitable facilities (eg electricity, benches, waste disposal) for near patient testing.
   The laboratory carries out the preliminary setting up and evaluation of the equipment.

3. **Operation of Equipment**
   Laboratory staff organise and implement a training programme for all staff involved in the operation of near patient testing euqipment in the ward or clinic. This includes provision for retraining and training new personnel.
   The laboratory maintains a list of trained operators.
   Laboratory staff provide a method sheet detailing:
   — patient preparation
   — sample collection/preservation/stability
   — equipment operation
   — quality control procedures
   — result reporting
   — means of obtaining assistance from the laboratory
   Maintain safety procedures as practised in the laboratory. Maintain correct disposal of blood and biological waste, reagents and good housekeeping practices. Instruments as a source of infection may be a more important issue than in the laboratory.

4. **Recording and Reporting Results**
   The laboratory prepares worksheets for result recording at the near patient testing site. These include space for:
   — the result
   — patient identification
   — time of analysis
   — entry of QC and calibration results
   — name of analyst
   A copy of the results be recorded in the patient notes on an appropriate form.

5. **Quality Assurance**
   The laboratory be responsible for organising a quality control programme.
   Criteria for QC decision making be decided by consultation between laboratory staff, operators and appropriate other medical personnel.
   The laboratory maintains an overview of the quality control results.
   Participation in an external QC programme may be appropriate.
   Where appropriate, eg Intensive Care Units, Near Patient Testing procedures should be TELARC registered.
6. **Maintenance**
   Laboratory staff carry out all maintenance of near patient testing laboratory equipment.
   The laboratory organises any service of the equipment by an outside organisation.
   The laboratory provides a procedure for obtaining support, both within and outside normal laboratory hours.
   The laboratory provides backup service in case of breakdown.

Acknowledgement
The NZIMLS thanks the Biochemistry Department of Waikato Hospital for their assistance in the formation of this policy.

GUIDELINES FOR GENERAL PRACTICE

1. **Purpose**
   It is important before accepting the need for near patient testing on a site to define its purpose and nature, and the benefits expected of it.
2. **Equipment**
   Equipment and reagents used for near patient testing should be compatible with equipment and reagents used elsewhere in the area and yield similar analytical results to those produced by the main laboratory.
   Uniformity of equipment brings with it advantages such as simplification of training, the storage and supply of disposable reagents, servicing and maintenance.
3. **Placement**
   Care must be exercised in deciding upon the placement of near patient testing facilities. The environment should be clean, well lit, but not in direct sunlight, temperature controlled and have facilities for storing the reagents. Adequate bench space for writing up results and appropriate containers for the disposal of reagents and blood contaminated waste should be available.
4. **Safety**
   Staff must know the detailed procedures for the collection and handling of specimens of blood, urine and other body fluids and for their safe disposal on the completion of the test.
   A near patient testing site should have an action plan to cover:
   — malicious damage
   — accidental swallowing of potentially hazardous material
   — accidental skin puncture or cut
   — breakages and leakages
5. **Maintenance and Storage**
   It is essential that all users of near patient testing equipment are made familiar with the routine preventative maintenance procedures necessary to keep their equipment operating optimally. Instruction in simple maintenance, including calibration if necessary, should be given to all users by the supplier.
   A record of regular maintenance should be made in a log book kept adjacent to the equipment. More complicated servicing should be carried out on a regular basis by the supplier's service engineer or representative.
   Any service malfunction should be reported to the supplier immediately.
   Disposable reagents do have expiry dates and can, if improperly handled, deteriorate more rapidly thus producing invalid results. Adequate and appropriate storage facilities must be available. Stocks of reagents for near patient testing should only be used if stored properly and still within their expiry dates. Any reagents that fail to meet these criteria should be withdrawn and replaced. Out of date reagents should be destroyed or returned to the suppliers.
6. **Training**
   Training developed by manufacturers must be appropriate for non laboratory staff. Only trained staff should use the equipment, despite difficulties due to the large numbers of potential users and the frequent change of staff during the lifetime of the equipment. The supplier of the near patient testing equipment is responsible for the training which will be required on a regular basis and given to all staff authorised to use the equipment.
   Training must be sufficient to enable the operator to achieve reliable results. It should include instruction on regular calibration (if indicated), reagent management and the collection and handling of samples.
   Training should also be given in quality assurance (see later, safety of equipment (electrical and mechanical, etc) potential hazards of patient samples and the possible problems encountered with the measurement procedure.
   The training session must include some practical experience with the instrument and a detailed procedures document.
7. **Documentation**
   A written record, including the name of the operator, must be entered in a book kept adjacent to the instrument for all results whether for calibrant, quality control or patient samples. The record must be made at the same time of the analysis and entered into the patient's clinical notes as soon as possible. In addition to the test result any other useful identification information should be recorded by hand.
8. **Quality Assurance**
   The aim of quality assurance is to check on operator performance as well as upon the reagents and equipment. Most users of near patient testing are unaware of the general concepts of quality assurance and should be acquainted with them during their training in the use of near patient testing equipment. Suitable quality control material should be made available to near patient testing users by the supplier. The nearest TELARC registered laboratory may also be able to assist in this area. A protocol for the use of quality control material covering frequency and interpretation of quality control results should be drawn up. The protocol should include strict rules that require the instrument to be taken out of use when quality control results are unacceptable or out of range. When this happens the supplier or other appropriate persons should be contacted to ensure the problem is rapidly dealth with.
9. **Authorisation**
   Only those individuals who have undergone appropriate training should be authorised to use the equipment. An up to date list of users should be kept. Some authorised person should be responsible for overseeing the use of the near patient testing equipment checking maintenance, reagents, quality control and documentation.

48th Annual Scientific Meeting of The NZ Institute of Medical Laboratory Science

Ngaio Marsh Conference Centre
University of Canterbury

August 24-27 1993

Programme & Registration Form for Conference and Workshop

48th Annual Scientific Meeting
24—27 August 1993, Christchurch

Invitation To Attend

It is my pleasure to invite you to attend the 48th Annual Scientific meeting of the NZIMLS in Christchurch August 24-27th. We have an enthusiastic committee putting together a very full scientific and social programme which we are sure you will enjoy. The venue is the Ngaio Marsh Conference Centre at the University of Canterbury which is a top class site in lovely surroundings. We look forward to seeing you there to help us make this conference a success.

Christine Hickton, Conference Convenor.

TENTATIVE PROGRAMME

Tuesday 24th August	**Workshops** **User Group Meetings**
Wednesday 25th August	**Opening Ceremony** **NZIMLS Annual General Meeting** **Changing Health Environment Forum**
Thursday 26th August	**Concurrent Fora/Proffered Papers** Biochemistry (John France) Immunology (Paul Gatenby, Rob McEvoy) Microbiology (Frank Griffin, Geof Delisle) Haematology (Michael Berndt) Transfusion Medicine Histology/Cytology (Martin Sage) **General Fora** Renal Pathology (Ross Bailey, Peter Siseland) Antiphospholipid forum (Paul Gatenby) Hepatitis C Forum (Lance Jennings) **Poster Sessions**
Friday 27th August	**Plenary Session** Molecular Biology Forum **General Forum** Quality Assurance and Regulatory Affairs **Concurrent Fora** Proffered Papers **Closing Ceremony**

VENUE

This year's conference is being held at the Ngaio Marsh Conference Centre at the University of Canterbury, some six kilometres from the centre of Christchurch and on route to the airport.

ACCOMMODATION

Accommodation has been reserved at the following properties during the conference to cater for all registrants and partners. A specially negotiated accommodation rate has been secured at all properties.

Hotels/Motels	**Distance**	**Room Tariff/per night**	
The Chateau Hotel	10 mins (taxi)	$134.00 single/twin/double	
The Towers Motel	10 mins (taxi)	$90.00 single/twin	
The Academy Motel	05 mins (walk)	$90.00 single	$110.00 twin

Please Note:

Reservations for hotel/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, attendees must arrange for a companion to register and both must cross reference other names under Special Accommodation Requirements. Family units are available on request.

University Halls Of Residence Accommodation

Includes Cooked Breakfast 05 mins (walking) $46.00 per person

Please note: It is necessary for full payment to be made regarding this option of accommodation. Please complete this area of the registration form for this option.

AIR TRAVEL

Air New Zealand National offer a 25% discount for persons attending this conference. When making bookings please advise the booking officer that you are attending the NZI Medical Laboratory Science conference and quote the authority DOM /1760/3 to avail the discount. Fare basis code U25

This discount is available on Air New Zealand National/Link and Mt Cook Services.

Please note there are a range of incentive fares offered by Air New Zealand National, ie Thrifty fares, which attract a discount greater than 25%. You should ask about these at the time of booking.

ARRIVAL & DEPARTURE AT CHRISTCHURCH AIRPORT

Christchurch Airport is located approximately 20 minutes from the city centre. Transport will be provided to your chosen hotel/motel/hall of residence on arrival and return. A voucher for your transfers will accompany your registration acknowledgement letter which will be sent to you once we have received your registration form. The transfer will be made by the Super Shuttle Company.

NOTE: Vouchers are required to be handed to the Super Shuttle Driver and will only be sent if flight details are provided on the registration form.

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 at this function is included in the registration for Full Registrants. Additional tickets are available through the registration form.

Venue – Ngaio Marsh Conference Centre University of Canterbury.
Time – 7.00 - 9.00pm
Cost – Extra Tickets: $17.00

PIZZA EVENING/'70S DISCO

Time to relax and enjoy yourself at a night of informal fun at Ngaio Marsh Conference Centre. An informal buffet of Pizza, Quiche, Salad etc will be accompanied by liquid refreshments. A cash bar will be available.

Cost – $20.00 per person (optional)

CONFERENCE DINNER

This evening function is a buffet dinner to be held in the Great Hall at the Chateau Hotel. This evening will feature a Rock'n Roll theme with music provided by the Velvettes, Canterbury's foremost Rock'n Roll band.

Cost – $60.00 per person. (Optional) Limited numbers please book now.

TRANSPORT

A coach shuttle service will be supplied to and from the hotel, motels and university accommodation, as listed in the accommodation section, to the Conference Dinner at the Chateau Hotel.

WORKSHOPS

The numbers attending workshops will be restricted.

IMMUNOHISTOCHEMISTRY WORKSHOP

This workshop will entail hands on experience with new amplification techniques.

VENUE: Christchurch Clinical School, Christchurch Hospital Start Time: 10.30am Cost: $30.00

DNA ANTIBODY WORKSHOP

This workshop will follow on from the one held last year and will concentrate on result interpretation.

VENUE: Pathology Services, Christchurch Hospital. Start Time: 9.30am Cost: $30.00

AUTOMATION IN THE CLINICAL MICROBIOLOGY LABORATORY

This is a demonstration workshop looking at two blood culture instruments and other automated systems. There will be plenty of time for discussion.

VENUE: Christchurch Clinical School, Christchurch Hospital. Start Time: 10.30am Cost: $30.00

EXAMINERS & MODERATORS WORKSHOP

This half day workshop is aimed at people interested in becoming examiners in Medical Laboratory Science and will concentrate on the appropriate wording of examination questions and the preparation of marking schedules.

VENUE: Christchurch Clinical School, Christchurch Hospital. Start Time: 1.00pm Cost: No Charge

NB: Transport will be provided after the workshops to your hotel/motel/University accommodation.

REGISTRATION ON ARRIVAL

Registration will commence at 6.30pm on Tuesday 24 August at the Ngaio Marsh Conference 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.

REGISTRATION FEES

Full Registration - $220.00
This registration fee includes the Welcome Function, morning & 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 July 20 will incur a late registration penalty of $50.00 per registration.

CANCELLATION FEES

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

Before 20 July - 50% refund After 20 July - no refund

REGISTRATION CONFIRMATIONS

A registration confirmation letter will be forwarded to you when your registration has been processed. This letter of confirmation , stating your registration number is to be retained and presented at the Conference Registration Desk in order to receive your Conference Programme, namebadge 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 in the Ballroom and the New Foyer of the Ngaio Conference Centre. Morning, afternoon teas and lunches will be served in this area. A cash bar will be available at the same venue throughout conference hours.

CHRISTCHURCH CLIMATE

Christchurch in August can be crisp but changeable. The daytime temperatures range between 6 -11 degrees dropping to 1 degree overnight. So be prepared for frosts followed by a lovely day, or rain. Pack an umbrella and some warm things for early mornings and evenings.

NZIMLS 48th ANNUAL SCIENTIFIC MEETING
24-27 AUGUST 1993, CHRISTCHURCH

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
   P.O. Box 11-145, Sockburn
   Christchurch
4. Any queries contact:- Conference Secretariat
   Neela Patel, Ph (03) 322 7240, Fax (03) 349 4965
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) .....

HOTEL/MOTEL ACCOMMODATION

Room Type ☐ Single ☐ Double ☐ Twin

Arrival Date: / / Departure Date: / /

Preferred Accommodation

Please indicate first, second & third choice

- Chateau Hotel ☐
- The Towers ☐
- Academy Motel ☐

HOTEL/MOTEL DEPOSIT $_____
(Equal to first nights accommodation)

UNIVERSITY ACCOMMODATION

(Full Payment) $46 x ☐ nights = $_____

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: .....

AIRPORT TRANSFERS yes ☐ no ☐

- Airport/Pathology Dept Chch Hosp (workshop) ☐
- Airport/Accommodation Shuttle Required ☐
- Venue/Airport Shuttle Required ☐
- Accommodation/Airport Shuttle Required ☐

Flight Details

Arrival Flight No: ..... Departure Flight No: .....

Arrival Date: / / Departure Date: / /

Flt Arrival Time:_____a.m./p.m. Flt Departure Time:_____a.m./p.m.

CONCURRENT FORUMS - THURSDAY Please tick box indicating your major area of interest

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

REGISTRATION FEES

	Prior to 20 July 93	After 20 July 93	Total
Full Registrant	$220.00	$270.00	$_____

Day Registration

Wed ☐ Thur ☐ Fri ☐ $100.00 per day $_____

REGISTRATION SUB-TOTAL $_____

SOCIAL FUNCTIONS

Welcome Function (extra tickets) ☐ @$17.00 $_____

Pizza Evening (optional) ☐ @$20.00 $_____

Conference Dinner (optional) ☐ @$60.00 $_____

SOCIAL FUNCTION SUB-TOTAL $_____

WORKSHOPS - TUESDAY (Indicate your preference)

Immunohistochemistry Workshop ☐ @$30.00 $_____

Moderators & Examiners Workshop ☐ $ No charge

DNA Workshop ☐ @$30.00 $_____

Automation in Microbiology ☐ @$30.00 $_____

WORKSHOPS TUESDAY SUB-TOTAL $_____

Workshops - Tuesday sub-total $_____

Social Functions sub-total $_____

Registration sub-total $_____

University Accommodation (Full payment) $_____

Hotel/Motel Deposit $_____

TOTAL TO PAY $_____

Cheque enclosed ☐ Tick

All prices include GST

TAX INVOICE GST NO. 13878595

CURRENT COMMENT

NEAR PATIENT TESTING? NPT — NON PROFESSIONAL TESTING? NON PATIENT TESTING?

Jim Le Grice
Medlab South/Christchurch

NPT developed significantly in the early 1980s with the availability of analytical systems intended to bring pathology testing — and especially biochemistry tests — nearer to the patient. A frequent suggestion at that time was the newer analytical systems could be used successfully with little training, by persons without a background in laboratory science. Other benefits included elimination of laboratory overheads, a closer doctor/patient relationship, prompt feedback of results and greater patient convenience.

The problems associated with the production of reliable, safe and accurate measurements in near patient testing facilities, whether in general practitioners' offices, High Street pharmacies or hospital wards are considerable, though frequently minimised by those with a vested interest in doing so.

THE NEW ZEALAND SCENE

There has been little incentive for GPs in New Zealand to invest in NPT, partly because of the lack of direct reimbursement for such purposes. This is in direct contrast to the USA where prospective funding on "case mixed groups" is driving some laboratory work away from its traditional setting and reimbursement for NPT can make a significant profit for the physician, has resulted in approximately 25% of all laboratory tests being performed in doctors' offices.

However, blood glucose, (and some other tests) have now been withdrawn from the NZ Laboratory Diagnostic Services Schedule and replaced with a free supply of glucose test strips to GPs. Reimbursement for glucoses on the Fund was $3.29, the Government is paying about 62 cents for each glucose strip. Patients must now pay for their glucose tests although charges vary between GPs' surgeries and community laboratories.

NPT has been practised in New Zealand hospitals for some time but this latest development is the first to significantly impact on community laboratories. As the Government pursues its "patient pays" agendas for hospital and community laboratory testing and commercial pressure builds, NPT will experience rapid growth.

Because NPT covers such a wide range of tests and situations, I am going to limit my discussion to blood glucose testing in General Practice.

Benefits and Cost of NPT

The benefits and costs of NPT are clouded by social, political and economic pressure. Commercial companies selling these diagnostic aids extol the virtues of NPT and have a steady stream of supporting literature stating that application of NPT will achieve benefits in terms of cost, quality of life and influence on patient management and outcome. Evidence to support such benefits still appears limited although use of NPT in some hospital acute care settings and in suitably supported self-testing in diabetics has been shown to be effective.

So what can go wrong?

NON PROFESSIONAL TESTING?

Anecdotal evidence may not be scientifically based, but it provides working examples of problems we have experienced:

- The phone call from a Doctor's nurse, "Are your glucoses accurate? We did a glucose four times on this patient, the level started off at 12.2 and we got a high of 14.4 mmol/L. Your result is 18.4 mmol/L".
- The 15 year old insulin dependent diabetic who was showing excellent control with his self monitoring of blood glucoses. He was getting levels of 7.5 mmol/L while we in the laboratory got 15 mmol/L. He came in and sure enough the glucose from the fingerprick read 7.5 mmol/L while our SMAC gave a result of 15.2 mmol/L. He even checked the calibration of the instrument in front of us. The implications for this young diabetic, believing he had good control, are quite serious.
- The Doctor who rings up and says "Are you having problems with your glucoses? We received a blood glucose of 35 mmol/L on one of our patients but he was only 15 mmol/L on the test we did in the surgery when we sent the blood in".

Reports of blood glucose monitoring in the non laboratory based setting found that unacceptable errors are 3 times more likely to occur than with laboratory based assays despite the excellent optical precision of these glucometers.

Reasons include:

— Unsatisfactory sample collection.
— Improper calibration.
— Improper application of the sample to the reagent strip.
— Accumulation of the cotton fibres in the optical compartment after wiping.
— Incorrect location of the strip in the meter.
— Contamination of the optical compartment.
— Defective or outdated strips.

Generally with NPT, result quality decreases, precision is about 3 times worse in NPT than laboratory results.

At Nelson Hospital, ward blood glucose testing of a control sample has a coefficient of variation of 9.1%, the laboratory achieves 3.6% on the same sample.

At Timaru Hospital an Ames Glucometer had a within run precision of 6.9% while the Boehringer model had a precision of 5.9%. Their laboratory method in the same circumstances achieves a coefficient of variation of 1.8%.

Problems associated with doctor office laboratories include:

— A lack of quality control in testing procedures.
— A lack of knowledge about the importance of quality control procedures.
— A lack of adequate procedure manuals.
— A lack of preventative maintenance.
— A lack of knowledge concerning laboratory safety.
— An inability to assimilate information on quality assurance.

In the United States, the Clinical Laboratory Improvement Act of 1967 and Amendments of 1988 (CLIA '67 and CLIA '88) were enacted to address some of these issues to ensure that all clinical laboratories provide a quality of service that meets clinical needs for good patient care. Approved proficiency testing programmes are used to judge the quality of laboratory testing by promulgated performance criteria. Under this scheme NPT has come under close scrutiny.

NON PATIENT TESTING?

When we had the SMAC analyser that did 18 tests on each sample we picked up an unrequested glucose of 32.6

mmol/L on a five year old girl. The clinical details of polydipsia and polyuria were consistent with diabetes; the GP had requested a battery of tests but avoided gluclose since we were charging $5 for this test. When I rang the Medical Centre with the result and enquired as to whether a glucose had been performed at the surgery, the practice nurse replied, "Well I was busy, and I'm not confident doing the test and the patient looked so ill I just sent her into the lab". In a similar circumstance we were alerted to a 52 year old male with glucose of 42.9 mmol/L. Does NPT really mean Non Patient Testing?

Consider this, when glucoses were taken off the Laboratory Diagnostic Services Schedule in September 1991, Medlab South began charging $5 per test. Requests for serum glucose plummeted by over 90% in 5 months.

So, with the 3 largest community laboratories in New Zealand, Auckland Diagnostic Lab, Medlab Auckland and Medlab South all charging for glucose testing and experiencing large workload reductions in this area one would expect the major suppliers' sales of glucose NPT to skyrocket by at least 20,000-30,000 tests a month. The major suppliers of glucose NPT equipment have not experienced an increase in sales of this magnitude. This means glucose testing is not being done, testing for a disease that affects about 4% of the general population and 14% of those over 65 years. Indeed does NPT mean Non Patient Testing?

A ramification of decreased glucose testing is increased morbidity. In the last three months of 1991 after Laboratory funding for blood glucoses was removed the Biochemistry Department at Christchurch Hospital experienced a 16% increase in keto acid requests when the overall work showed a 3% decrease compared to the similar period in 1990.

Needless to say Medlab South have stopped charging patients for glucoses and other non funded tests.

STRATEGY FOR THE FUTURE

NPT testing is here and here to stay. There is no way we can stop the introduction and use of NPT products. In some situations, NPT is both practicable and desirable. Its apparent simplicity often belies its complexity and masks the need for attention to detail in order to achieve good results and avoid disasters.

The pressure to increase NPT ultimately depends on whether the routinely available testing is geared to provide fast, accurate and meaningful results which enable rapid diagnosis and appropriate therapy to be initiated. It remains more efficient, and cost effective, for an individual practitioner to send specimens to an independent laboratory unless the service level adversely affects the delivery of clinical care. For traditional laboratories to be successful they must:-

— Give fast quality service and provide accurate reporting.
— Communicate results effectively to the appropriate clinician and be able to provide informed comment on the interpretation of the results by appropriately trained staff.
— Be able to demonstrate relevant quality control of the testing provided, give evidence of a commitment to quality assurance and where possible demonstrate accreditation with an appropriate review board such as Telarc.
— Invest in new technology, update client users on developments in laboratory medicine and be responsive to consumer demands.

THE ROLE OF THE HEALTH SERVICE

The aim of a health service must be to provide a laboratory service of the highest quality at the most economical cost. Economies of scale can only be achieved by professional laboratories. It is only within the dedicated laboratory that the appropriate skills can be perfected which result in the most effective management of manpower and resources.

It is the responsibility of health authorities to ensure that there are convincing benefits arising from establishing laboratory testing outside the dedicated laboratory. Clear policies must be developed for the types of testing which are acceptable in medical surgeries and the clinical reasons for performing these tests in this setting. There should be a legislative requirement for quality control programmes and enforceable guidelines for the levels of proficiency which must be achieved. There should be a clear policy on the relationship between those providing near patient testing and the available clinical laboratory service. A clear definition of the medico-legal responsibility assumed by those practitioners offering near patient testing must also be established.

REFERENCES

Hailey DM, Lea AR, Dunt DR, Thomas DW, Wyndham LE, Maynard JH, Reed CSH, Mudge P. Assessment of physicians' office pathology testing: organisational considerations. *Med Lab Sci* 1990; 47, 251-255.

Farr AD. Near-patient 'laboratory' testing. *Med Lab Sci* 1990; 47, 249-250.

Leese Brenda, Hutton John. Desk top analysis in general medical practice: how useful are they? *Med Lab Sci* 1990; 47, 256-262.

Hodgson W, McKenzie RS. Dip-Stick Chemistry: Simple and Reliable or Simply Unreliable. *NZJ Med Lab Technol.* 1984; 38, 68-69.

Parker J. Extra Laboratory Glucose Testing. *NZJ Med Lab Technol.* 1987; 41, 5-6.

Marks Vincent. Essential Considerations in the Provision of Near-Patient Testing facilities. *Clin Biochem Revs* 1988; 9: 124-127.

IMLS Council Statement. Near Patient Testing. *IMLS Gazette:* May 1992, 242.

Peddecord KM, Hammond HC. Clinical Laboratory Regulation under the Clinical Laboratory Improvement Amendments of 1988: Can It Be Done? *Clin Chem* 1990; 36:12, 2027-2035.

ERRATUM

Ref: NZJ Med Lab Science 1993; 47(1): 38-39.

Glossary items marked with an asterisk in the article entitled "Polymerase chain reaction from an Immunohaematology viewpoint" were reprinted by permission of W H Freeman and Company from DNA Fingerprinting: An Introduction, by Lorne T Kirby. Copyright © 1990 by Stockton Press.

Ed Note: This acknowledgment was omitted in error.

Introducing the all-new Jung AUTOSTAINER XL

Leica

Advantages of the AUTOSTAINER XL

*The **Jung AUTOSTAINER XL** allows for the automation of all routine staining protocols for histological and cytological specimens. It has several important features that give it many advantages over other staining instruments:*

1. ***Higher throughput:** Up to 200 slides per hour or 1,000 slides per day.*
2. ***More flexibility:** Allows for the programming of different station times, station sequences and simultaneous protocols (random access). In addition, a staining program can be terminated at any reagent and the racks can be removed prior to the completion of the staining protocol.*
3. ***Improved safety:** With its self-contained fume extraction and load and unload slide rack drawer access system there is less exposure to hazardous fumes.*
4. ***Higher quality:** Accurate timing and an improved washing efficiency provide for standardization of staining procedures giving higher quality and reproducible results.*
5. ***Continuous load:** Allows continuous rack loading and unloading without stopping the processing or opening the automatic stainer lid.*
6. ***Easily programmable via menu options.***
7. ***Integrated fan-forced oven optimizes slide drying.***
8. ***Economical and ecologically beneficial:** Through water saving feature which stops the flow of water if none of the wash stations is in use.*
9. ***Reliable, trouble-free, high precision instrument.***
10. ***Easy-to-use:** Automated features give user more time to devote on other lab procedures.*

Run H + E and Pap Simultaneously

Supplied and Supported by:

Labsupply PIERCE

Labsupply Pierce (NZ) Limited

HEAD OFFICE
165 Sunnybrae Road, Glenfield,
P.O. Box 34-234, Birkenhead,
Auckland 10, New Zealand.
Tel: 0-9-443 5867
Fax: 0-9-444 7314

WELLINGTON BRANCH
Unit 4, Park Head Court,
State Highway 2, Petone,
Wellington, New Zealand.
Tel: 0-4-569 4693
Fax: 0-4-569 4746

CHRISTCHURCH BRANCH
30 Sheffield Crescent,
P.O. Box 20-035, Bishopdale,
Christchurch, New Zealand.
Tel: 0-3-358 7410
Fax: 0-3-358 9598

NZJ Med Lab Science 1993; 47(2) : 55-57

A random survey of laboratory scientists' practices, attitudes and concerns regarding biological specimen handling in New Zealand in relation to HIV/AIDS.

Robert W L Siebers, MIBiol, MNZIC, FNZIMLS Senior Technical Officer[1], Michael Lynch, MNZIMLS Tutor Co-ordinator[2], Ron MacKenzie, PhD, FNZIMLS, Laboratory Manager[3].

Department of Medicine[1], Wellington School of Medicine and Departments of Pacific Paramedical Training Centre[2] and Laboratory Services[3], Wellington Hospital, Wellington.

Correspondence: R Siebers, Department of Medicine, Wellington School of Medicine, PO Box 7343, Wellington South.

Abstract

The aim of this survey was to determine laboratory scientists' practices, attitudes and concerns regarding handling of HIV positive biological samples in New Zealand medical laboratories.

A questionnaire regarding biological sample handling practices, attitudes and concerns relating to HIV/AIDS, was distributed anonymously to a random sample of laboratories throughout New Zealand. Differences in response rates between groups were analysed by analysis of variance (ANOVA).

A total of 301 questionnaires were returned. The main findings of this survey were that 14.6% and 23.3% of respondents considered that their employer did not provide adequate safety measures and education respectively in regard to HIV/AIDS. Only four respondents were seriously considering leaving their job because of fear of AIDS. A further 16 respondents would have chosen another career if given prior knowledge that they would be handling HIV positive biological samples with 96 respondents being uncertain. The majority of respondents had not in the preceding year attended a workshop or lecture on HIV/AIDS.

The results of this survey suggest that concerns regarding handling of HIV positive biological samples need to be addressed in New Zealand laboratories through continuous education.

Keywords:
HIV, AIDS, Education.

Introduction

Fear is the main source of superstition and one of the main sources of cruelty. To conquer fear is the beginning of wisdom.

Bertrand Russell, 1950.

Although acquiring AIDS through exposure to HIV positive biological samples is low, the fear of this is real, due to the ultimate fatal outcome once infected. A seroprevalence rate of 0.42% was found in 963 health care workers in the United States of America exposed to HIV positive blood [1].

Numerous surveys amongst health care workers, predominantly nurses, have demonstrated ill-founded fears and attitudes and a lack of knowledge in regard to AIDS [2-6]. These fears are best tackled by educational means which are successful in alleviating many misconceptions held about AIDS and ultimately leads to a more liberal attitude towards the disease and to those affected [2,7,8].

There is a lack of information of such attitudes among clinical laboratory staff. Two surveys in the USA showed that fear of handling HIV positive biological specimens contributed to a large (up to 25%) attrition rate amongst laboratory scientists [9,10]. However, a similar survey in one New Zealand Area Health Board did not demonstrate a similar attrition rate but did show that a significant percentage of laboratory staff considered that their employer did not provide adequate safety and education in regard to HIV/AIDS [11].

The purpose of this study was to further explore the practices, attitudes and concerns of medical laboratory scientists in New Zealand regarding to handling of HIV positive biological samples, to provide the beginnings of a data base which may be of use in the development of educational policies.

Methods

A questionnaire was constructed, consisting of three sections. Part 1 asked for demographic variables. Part 2 consisted of questions regarding biological specimen handling and concerns relating to this, generally requiring a simple yes or no response. Part 3 consisted of three structured statements utilising Likert rating scales with five response options ranging from "strongly agree" to "strongly disagree".

The questionnaire was included in the programme satchel for delegates attending the 1992 47th Annual Scientific Meeting of the NZIMLS in Wellington. The delegates were asked to voluntarily fill in the questionnaire anonymously. Due to a poor initial response rate, various delegates were contacted post-conference and asked if they were willing to fill in the questionnaire and, if willing, to distribute it among other staff in their laboratory. After a two-month period the questionnaire responses received were entered into a data base on a Macintosh Classic Computer and the results analysed using the Stats View statistical package. Distinct response rates are presented as proportions, and potential differences to various questions between groups were evaluated by analysis of variance (ANOVA). A p value of <0.05 was deemed statistically significant.

Results

A total of 301 completed questionnaires were received from laboratory staff, 66 (22%) from private laboratories and 235 (78%) from hospital laboratories. Of the total, 79 (26.2%) were male and 222 (73.8%) were female. Due to an oversight of the authors, the category of laboratory assistant was inadvertently omitted from the qualification category of the questionnaire. Because of this, and the fact that various responders did not fill in this section, no comparisons have been made to questions or responses in regard to the responders qualifications.

Table 1 lists the responses obtained from the questions from part of the survey. Those respondents who always wear gloves when dealing with biological specimens were more likely to treat all specimens as potentially HIV/AIDS positive ($p=0.001$).

Additionally, females were more likely to wear gloves than males (24.8% vs 17.7% always do, and 2.3% vs 10.1% never do; $p=0.019$). Those treating all specimens as HIV positive more strongly agreed that they have the right to be informed if HIV/AIDS positive specimens are present in their laboratory

work area compared to those that did not treat all specimens as potentially HIV positive (p=0.001).

Females were more likely than males to respond yes to the question in regard to family/friends expressing serious concern in regard to their work in the laboratory in relation to HIV/AIDS (47.3% vs 32.9% respectively; p=0.013). Responders answering affirmative to this question were more likely to agree to the statements that their employer provides adequate safety measures (p=0.006) and education (p=0.005) in regard to HIV/AIDS. Responders uncertain if they would have chosen another career given prior knowledge they could be handling HIV positive biological samples, tended to consider more that their employer did not provide adequate safety measures to minimise HIV/AIDS transmission in the laboratory (p=0.021).

Only 31% of responders had attended a workshop or lecture on HIV/AIDS in the preceding year. Those who had attended were more in agreement that their employer provided adequate safety and satisfactory education in regards to HIV/AIDS (p=0.006 and 0.034 respectively). Finally, there was an inverse relation between the safety and education statements. Those who agreed that their employer provided adequate safety measures tended to disagree more with the statement that their employer provided satisfactory education in regard to HIV/AIDS (p=0.001). Responses to the statements A, B and C in the questionnaire are shown in Table 2.

Discussion

The results from this random survey demonstrate various pertinent points in regard to medical laboratory scientists' practices, attitudes and concerns in regard to the handling of potentially HIV positive biological specimens. A recent pilot study among laboratory staff of the Wellington Area Health Board showed that only 5 out of 133 laboratory staff were seriously considering leaving their job because of their concern at acquiring HIV/AIDS through handling biological specimens [11]. This was similar to a study of nurses from the same Area Health Board [6], but contrast with a study of American medical technologists where 25% of delegates (n=212) to the 1988 Annual Meeting of the New Jersey Society for Medical Technology were seriously considering leaving the profession because of fear of AIDS contraction in their job [10]. This survey also shows that a negligible number of medical laboratory scientists throughout New Zealand are considering leaving because of fear of contracting AIDS in the laboratory. However, the current economic climate and massive changes in the health sector may well have affected this low response rate. It was not possible to determine whether laboratory scientists who have left have done so because of fear of HIV/AIDS. Of more concern is the fact that 16 responders would have chosen another career, and a further 96 (32%) were uncertain, if they knew they could be handling HIV/AIDS positive biological specimens prior to commencing training for or starting their job in medical laboratory science.

These results suggest that appropriate education to both educate and alleviate misconceptions, fears and attitudes in regard to HIV/AIDS is desirable during training in medical laboratory science [7,8,13]. One such study of nursing degree students in Canada demonstrated a more liberal attitude towards the disease, and improved students concerns after an intense workshop on AIDS [2]. Additionally, continuous in-service educational programmes also have to be directed at the health care workers already in their job. Programmes have to deal with participants' attitudes in addition to factual AIDS information [12], as another study demonstrated no correlation between core knowledge and attitudes among nurses [4]. Thus, courses focusing on knowledge alone are unlikely to change health care workers' attitudes and concerns towards AIDS.

Training courses for hospital staff, with emphasis on both knowledge and attitudes are successful in decreasing anxiety about AIDS and increasing positive attitudes both short [2] and long-term [8]. Psychosocial issues also need to be addressed as it has been demonstrated that emotional reaction towards AIDS is not directly related to subjects' knowledge and attitudes. For instance, taking blood specimens from AIDS patients left many nurses and physicians in the USA uncomfortable, the degree of concern showing no relation to knowledge of AIDS or the health care workers' personal attitudes [3]. The results of this survey also suggest that medical laboratory scientists' family and friends concerns need to be taken into account when planning educational programmes, given that nearly half of the respondents replied affirmatively to the question that they had family and/or friends express serious concern regarding their work in relation to HIV/AIDS.

Although the majority of responders considered that their employer provided adequate safety measures and satisfactory education in regard to HIV/AIDS, a significant number of responders disagreed. The percentage of those

Table 1 --- *Responses to biological specimen handling and concerns*

Question	Response		
1. Do you wear gloves when handling biological samples?	Always	69	22.9%
	Sometimes	219	72.8%
	Never	13	4.3%
2. Do you treat all specimens as potentially HIV/AIDS positive?	Yes	220	73.1%
	No	81	26.9%
3. Which is your main concern about acquiring in the laboratory?	HIV/AIDS	68	22.6%
	Hepatitis	39	13.0%
	Both equally	164	54.4%
	Neither	30	10.0%
4. Are you seriously considering leaving your job because of concern about acquiring HIV/AIDS through handling biological specimens?	Yes	4	1.3%
	No	297	98.7%
5. Have you had family/friends express serious concern regarding your work in the laboratory in relation to HIV/AIDS?	Yes	131	5.3%
	No	170	56.5%
6. Would you have chosen another career had you prior knowledge that you could be handling HIV/AIDS positive biological specimens?	Yes	16	5.3%
	No	189	62.8%
	Uncertain	96	31.9%
7. Have you in the last year attended an AIDS Workshop/Lecture?	Yes	92	30.6%
	No	209	69.4%

Response rates given as actual number of respondents and percentage of total.

Table 2 — *Responses to Statements A, B and C.*

Response rates given as actual number of respondents and percentage of total.
A: I feel I have the right to be informed if HIV/AIDS positive specimens are present in my laboratory work area.
B: I consider that my employer provides adequate safety measures to minimise HIV/AIDS transmission in my laboratory.
C: I consider that my employer provides satisfactory education regarding HIV/AIDS.

Statement	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
A	203	81	10	5	2
	67.4%	26.9%	3.3%	1.7%	0.7%
B	47	177	33	41	3
	15.6%	58.8%	11.0%	13.6%	1.0%
C	30	131	70	65	5
	10.0%	43.5%	23.2%	21.6%	1.7%

disagreeing with safety measures (14.6%) and education (23.3%) is lower than those in a previous study where 22.8% and 38.3% respectively disagreed with their employer's provision of safety and education [11]. However, it was only after the conclusion of that study that the Wellington Area Health Board instituted an in-service educational programme, in contrast to the present study where 30.6% of responders had recently attended such a programme. It is to be expected to find in this survey that AIDS programme attenders were more likely to agree that their employer provided adequate HIV/AIDS education. However, this survey shows that the majority of responders had not attended an AIDS educational programme in the preceding year. It could not be determined from this study whether non-attendance was due to lack of such programmes in the workplace or whether, for whatever reasons, there was a lack of motivation of the medical laboratory scientists to attend such a course. If an individual medical laboratory scientist has not attended such a course, and shows concerns and/or attitudes in relation to handling potentially HIV positive biological specimens, our recommendation is that they do so, given the various reports of the beneficial nature of such programmes [2,7,8]. It would also be beneficial to incorporate appropriate AIDS education in the medical laboratory science curriculum of Universities and Technical Institutes given the finding of this survey that a large number of respondents were uncertain whether they would have embarked on a career in medical laboratory science if they had prior knowledge that they could be handling HIV positive specimens.

It must be borne in mind that the results from this survey have some limitations. Firstly, the responders may not be representative of the whole laboratory work force in New Zealand. The latest published staffing survey showed that a total of 1592 medical laboratory scientists and assistants were employed in New Zealand medical laboratories in 1991 [14], thus the response rate of this survey based on those figures is 18.9%. Additionally a questionnaire can generate biased and pre-conceived suggestions. However, the authors feel that, given the lack of factual information regarding medical laboratory scientists' practices, attitudes and fears pertaining to the important, growing and emotive disease of AIDS, this study's results provide the start of a data base from which further research and strategies, both safety and educational, may evolve. This could assist medical laboratory scientists in addressing their practices, concerns and attitudes regarding handling of HIV positive biological specimens.

Acknowledgements:
The authors wish to thank the many laboratory scientists throughout New Zealand for both filling out the questionnaire and distributing it to their colleagues. Maureen Gordon and Helen Bark kindly provided secretarial assistance.

References:

1. Marcus R, and the CDC Co-operative Needlestick Surveillance Group. Surveillance of health care workers exposed to blood from patients infected with the human immunodeficiency virus. *N Engl J Med* 1988; **319:** 1118-23.
2. Armstrong-Esther C, Hewitt WE. The effect of education on nurses' perception of AIDS. *J Adv Nurs* 1990; **15:** 638-51.
3. Dworkin J, Albrecht G, Cooksey J. Concern about AIDS among hospital physicians, nurses and social workers. *Soc Sci Med* 1991; **22:** 239-48.
4. Robbins I, Cooper A, Bender MP. The relationship between knowledge, attitudes and degree of contact with AIDS and HIV. *J Adv Nurs* 1992; **17:** 198-203.
5. Akinsanya JA, Rouse P. Who will care? A survey of the knowledge and attitudes of hospital nurses to people with HIV/AIDS. *J Adv Nurs* 1992; **17:** 400-1.
6. van Wissen K, Siebers, RWL. Nurses' attitudes and concerns, pertaining to HIV and AIDS. *J Adv Nurs* 1993 (in press).
7. Flaskerud JH, Lewis MA, Shin D. Changing nurses' AIDS related knowledge and attitude through continuing education. *J Cont Educ Nurs* 1989; **20:** 148-54.
8 .O'Donnell L, O'Donnell CR. Hospital workers and AIDS: effect of inservice education on knowledge and perceived risks and stresses. *NY State Med J* 1987; **87:** 278-80.
9. Albrecht C, Miller L. Impact of AIDS on clinical laboratorians. *Lab Med* 1989; **20:** 187-91.
10. Gauch RR, Feeney KB, Brown JW. Fear of AIDS and attrition among medical technologists. *Am J Public Health* 1990; **80:** 1264-5.
11. Siebers RWL, MacKenzie R, Lynch M, Humble MW. Attitudes and concerns amongst laboratory staff regarding handling of HIV positive biological specimens. *NZ Med J* 1992; **105:** 217-8.
12. Hunt L, Waddell C, Robathan G. AIDS: attitudes and education. *Austr J Adv Nurs* 1990; **7:** 28-33.
13. Siebers R, MacKenzie R, Lynch M. AIDS and the laboratory scientist (letter). *Med Tec International* 1992 (in press).
14. NZIMLS Annual Staffing Survey. *NZ J Med Lab Science* 1992; **46:** 47.

NZJ Med Lab Science; 47(2) : 59-61

An evaluation of the Diesse Diagnostica Ves-matic 20, an automated system for the determination of the Erythrocyte Sedimentation Rate (E.S.R.)

Nicola Thomas, MNZIMLS, Anita Karpik, MNZIMLS.
Haematology Laboratory, Middlemore Hospital, Private Bag, Otahuhu, Auckland.

Abstract
The Ves-matic 20 is an automated ESR instrument which can process and print out ESR results comparable to the Westergren (International Committee for Standardisation Haematology approved) (I.C.S.H.) method within 24 minutes. A closed tube system is used which eliminates the risk of staff contamination from high risk blood samples.

The evaluation compared:
— Ves-matic 20 ESR results with the manual Westergren ESR results.
— ESR results from Vacu-tec tubes filled from an EDTA sample to those collected directly into the Vacu-tec tubes.
— The effect of time delay on the ESR when the Vacu-tec tube is stored at room temperature and at 4 degrees.
— The cost differences between the Ves-matic 20 and the Westergren method.

Introduction
The Ves-matic 20 is a bench top analyser designed to automatically determine the ESR of a maximum of 20 samples per cycle, and provide results with an actual sedimentation time of 20 minutes that are comparable to those obtained by the I.C.S.H. approved 1 hour Westergren method. The analyser has the facility to perform ESR's that are comparable to the 2 hour Westergren method, but as most laboratories do not perform the longer ESR, we did not carry out a comparison for this.

The freeing up of technologist time and staff safety are important issues for laboratory managers at present. The Ves-matic 20 has addressed these issues in our laboratory. Because samples are collected into specially designed tubes, less time is spent in the retrieving of EDTA samples; loading the analyser requires little time, and the result turnaround is reduced by half. The collection of the sample into Vacu-tec tubes at the time of venepuncture and the automated system overcomes the problems associated with sample handling.

Methods
The Ves-matic 20 uses specially designed tubes of which there are two types. The Vacu-tec tubes are filled by vacuum aspiration at the time of venepuncture (they can be filled manually at the bench from an EDTA sample), and the second type of tubes are the Ves-tec tubes which require manual filling from an EDTA sample. The Ves-tec tubes are currently not available in New Zealand.

Both tubes have the same dimensions and are enclosed in a removable sleeve to which the patient I.D. is attached. Both contain the same amount of anticoagulant/diluent, 0.35ml sodium citrate — 105mmol/L. The sample volume required to fill them to the intended height of 60mm is 1.1ml, this gives a final ratio of 3.1: 1 of blood to diluent. The tube can be filled to a maximum of 5mm above or a minimum of 12mm below the mark, and the instrument will still perform a reliable ESR. Because of the narrow tapering shape of the tubes it is important that the samples are mixed well at time of collection.

The Ves-matic 20 operates on the principle that erythrocytes will sediment at a greater rate if the tube they are contained in is deviated from vertical. In this instrument the tubes are held at an angle of 18 degrees from vertical, and associated with the design of the tube, and blood to diluent ratio, the time required for sedimentation is 20 minutes compared to the Westergren method which is 1 hour.

The analyser operations are very simple. A sample holder plate holds the tubes at the deviated angle. A motor then moves the holding plate at 90 degrees from its resting position where it rotates around its shaft for a fixed time, allowing standardised mixing of the samples. After returning to its horizontal position a photoelectric sensor passes up the outside of each tube and records the height of the RBC column i.e., at what point there is an increase in light transmission. After 20 minutes of sedimentation the photoelectric sensor passes up the side of each tube again and records the new height of RBC's. The analyser using the decrease in height along with a mathematical calculation gives a printed ESR result. The whole procedure takes 24 minutes, and is electronically timed.

Evaluation and Results
The evaluation of the Diesse Ves-matic 20 involved four areas, as mentioned previously. In all these evaluations, the venous EDTA specimens were collected using vacuum aspiration tubes containing Freeze-dried EDTA (Na_2) (Becton Dickinson Vacutainer Systems, New Jersey). The ESR tubes used were 90mm long Diesse Vacu-tec containing citrate as discussed above. (Expiry Dec. 1992). The Westergren ESR's were performed using the I.C.S.H. recommended procedure, using 300mm long plastic Westergren pipettes.

The EDTA sample was diluted with sodium citrate (109mmol/L), in a ratio of 4:1 immediately prior to performing the one hour Westergren ESR. The first comparison was to establish that the Ves-matic 20 ESR results were in fact comparable to the Westergren ESR results. The I.C.S.H. recommends that the validity of any method other than the Westergren may be acceptable for performing ESR's provided the validity is established (1). 124 ESR's were performed by both methods under normal working conditions. The criteria set for a comparable result, was that when the Ves-matic 20 ESR results were plotted against the Westergren ESR results on a linear regression plot, that the correlation coefficient be approximately 1.0. The resulting correlation coefficient of these results was 0.96 (Figure 1).

55 ESR's were performed in the comparison of ESR results using Vacu-tec tubes, which had been either filled from an EDTA sample, or collected directly. Both were compared to the Westergren method. The correlation coefficient of the Vacu-tec tubes filled under vacuum, compared to the Westergren ESR results was 0.97 (Figure 2). The Vacu-tec tubes filled manually, also gave a correlation coefficient of 0.97 when compared to the Westergren ESR results (Figure 3).

In the third comparison, the effect time delay has on the ESR result; 64 ESR's were performed with each Vacu-tec sample being retested every hour for 24 hours. The storage over this time was at room temperature. The results were then divided into three categories depending on their original ESR result:

Normal	0-15 mm/hr.
Moderate	16-50 mm/hr.
High	51 mm/hr.

Over the 24 hour period a drop in all the ESR results was noted, with some falling from the moderate to high ranges, into the normal range. This is demonstrated in the plot for the category which had an original ESR result greater than 51 mm/hr (Figure 4).

Fig 1

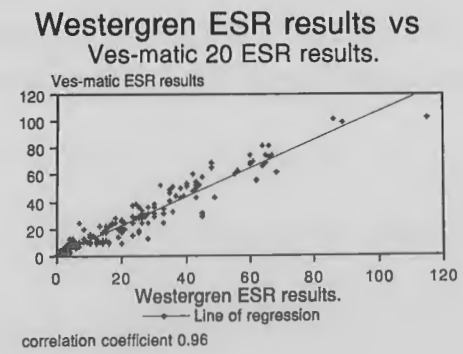


Fig 2

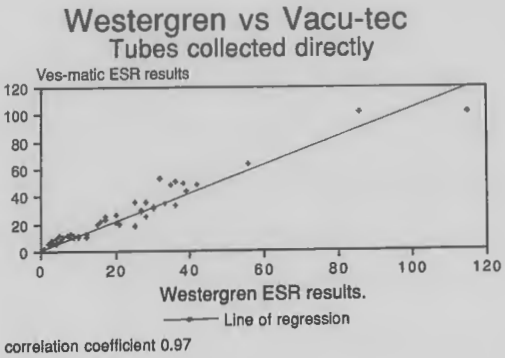


Fig 3

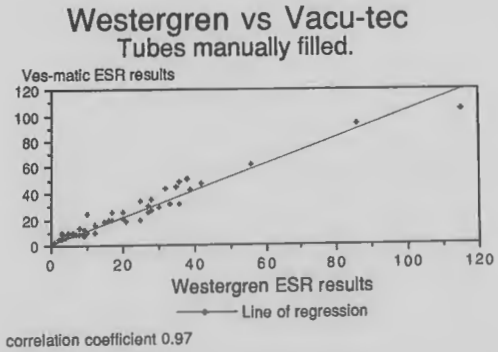


Fig 4

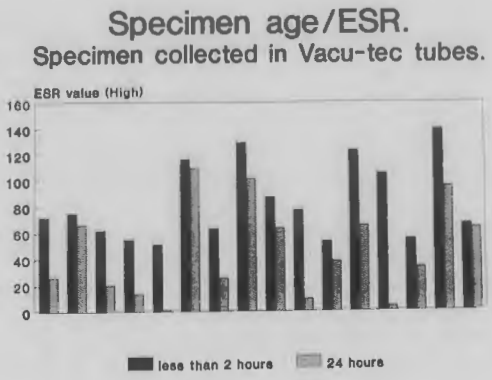
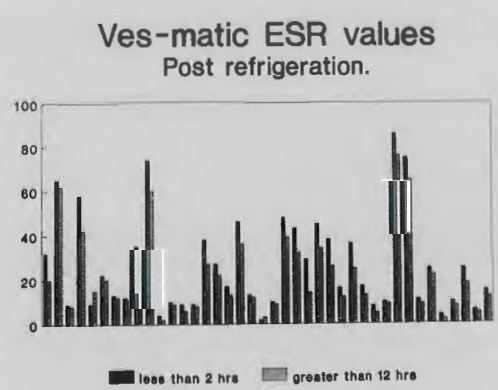


Fig 5



Having demonstrated a significant decrease in the ESR results following a time delay at room temperature, the stability of the Vacu-tec tube had to be established when stored at 4 degrees. 40 Vacu-tec tubes were stored at 4 degrees for at least 8 hours, the resulting decrease in ESR results we considered to be minimal (Figure 5).

The within batch precision was evaluated by collecting 12 samples from both a known normal patient and a known abnormal patient. The ESR's were then performed within 2 hours of collection, on the same run, and thus under the same conditions. The mean of the normal results was 5 mm/hr, with the 2 standard deviation range 2-8 mm/hr. The mean of the abnormal results was 48 mm/hr, the 2 standard deviation range was 42-54 mm/hr. With both sets of samples, all results were within the 2 standard deviation range.

Discussion

A costing exercise was done to find out what our expected costs would be when using the Ves-matic 20 compared to the Westergren method. The time interval for the exercise was over a 5 year period, this being the time allocated in our laboratory for the depreciation and writing off of the analyser. With reference to Table 1 (showing the expense during the first year of purchase), we based the consumable costs on the number of ESR's we performed last year, which was just under 14,000. A time and motion exercise was done to work out how much technologist time was spent per day performing the ESR's for both methods, (approximately 50 ESR's per day). The $13.50 is the hourly rate of a first year Staff Technologist, this rate was used because it is the average wage of the range of staff who perform routine ESR's. At the end of the first year it was obvious that due to the initial cost of the analyser the Westergren method expenses are less. Table 1 also looks at years 2 to 5. We have not taken into account price increases for consumables and technologist time, because both methods are subject to the same increases and therefore balance one another out. However, one factor that does need consideration but we were unable to cost, is that of any maintenance and repair work on the Ves-matic 20. Therefore at the end of the 5 year period the cost of performing Ves-matic ESR's compared to Westergren ESR's is $15,266 less.

There are things which cannot have a unit price put on them which we feel need some degree of consideration. They are the reduced biohazard risk to staff, the increased turn-around in producing a result and the freeing up of technologist time to perform other duties.

The main advantages in this system are obvious and have already been mentioned. Others include better standardisation of the ESR, printed results, the facility to interface the analyser with a computer or attach a bar code reader, and a compact and easy to operate analyser.

The disadvantages we have found. With reference to our paediatric samples, we are not able to perform micro ESR's on the Ves-matic and therefore rely on doing a micro Westergren ESR. Because the tubes are read optically, patient I.D. labels must be attached to the removable sleeve. When the sample arrives at our laboratory, laboratory I.D. labels are then attached to both tube and sleeve. The disadvantage is that if the sleeve is removed during transit there is difficulty in positively identifying the sample.

Lastly, a study done by Caswell and Stuart, University of Birmingham (2) showed that if there was prolonged storage of the plastic tubes there was either progressive loss of vacuum, loss of water vapour through the plastic, or absorption of citrate to the plastic. This could result in a change of blood to anticoagulant ratio and thus affect the result. To overcome this problem in our laboratory we have smaller and more regular orders of tubes from the suppliers. Refrigeration can also prolong the expiry date on the tubes.

The number of ESR's performed in our evaluation was not great, other evaluations have been performed on this instrument by laboratories with a larger turnover of ESR's than ours. Their results support our findings (3, 4). The main reason for our evaluation was to give us confidence in the Ves-matic ESR results we release from our laboratory.

Table 1. *Cost comparison of the Ves-matic 20 to the Westergren method for ESR's over a five year period.*

	Ves-matic 20		Westergren
First Year			
Apparatus			
Analyser	$8500	Racks X2	$516
Consumables			
Vacu-tec		Dispettes	
14000 × 50c	$7000	14000 × 29c	$4060
Paper		Cups	
3 × $20	$60	14000 × 2c	$280
		Pipette Tips	
		14000 × 2.5c	$350
Technologist Time			
1 hr/day		3 hr/day	
5 day/week		5 day/week	
260 hr pa		780 hr pa	
@$13.50/hr	$3510	@$13.50/hr	$10530
Total after First Year	**$19070**		**$15736**
Second to Fifth Year			
Expenses less Apparatus			
4 × $10570	$42280	4 × $15220	$60880
Totals	**$61350**		**$76616**

Conclusion

The Ves-matic 20 showed that it produces accurate results in terms of the comparison to the Westergren method. The Vacu-tec tubes have the ability to be filled either under vacuum, or manually from an EDTA tube, and refrigeration of the ESR sample allows for delayed testing, (this requires further evaluation to determine the maximum delay). The Ves-matic 20 provides us with a safe, efficient, and cost effective method for performing ESR's in our laboratory.

Acknowledgements

We would like to thank all of the staff in Middlemore Haematology for their assistance. With a special thanks to John Peters and Bernard Chambers who helped with the preparation of graphs and slide material.

References

1. I.C.S.H. Recommendation for Measurement of Erythrocyte Sedimentation Rate of Human Blood. *Amer J Clin Pathol* 1977; **68:** (4) 505-507.
2. Caswell M, Stuart J. Assessment of Diesse Ves-matic Automated System for Measuring Erythrocyte Sedimentation Rate. *J Clin Pathol* 1991; **44:** 946-949.
3. Ricci A, Arezzini C, Cocola F and Meiattini F. Evaluation of an Automated System for the Erythrocyte Sedimentation Rate Determination. Centro Diagnostico Senese UTO srl Via Celso Cittadini, 7 — 53100 Sienna, Italy.
4. Prischl FC, Schwarzmeier JD. Automated Determination of the Erythrocyte Sedimentation Rate. *Berichte der OKQC* 1988; **11:** 112-114.

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

Title	NZIMLS Journal Prize
Donor	New Zealand Institute of Medical Laboratory Science (Inc.)
Nature	An award of two hundred dollars ($200.00) will be made biennially to the author of the best original or review article published in the Journal of the NZIMLS concerning a medical Laboratory discipline other than related to the subject of Microbiology, Clinical Chemistry, Haematology and Immunohaematology or for another where a specific award or prize has been offered.
Eligibility	All financial Members of the New Zealand Institute of Medical Laboratory Science (Inc.)
Method of Entry	Publication of an original or review article in the Journal of the NZIMLS.
Date of Entry	All original and review articles on Medical Laboratory subjects other than those previously excluded which have been published during the two year period ending in December 1993 will be considered for the award.
Judging	The Judging panel shall consist of the Editor of the Journal, the President and one of the Vice-Presidents of the Institute. If, in the opinion of the Judging Panel, the standard of the articles does not merit an award, or if there are no eligible articles in any one judging period, then no award shall be made.

MAY 1993

NZIMLS CONTINUING EDUCATION

SPECIAL INTEREST GROUPS

Liftout

Haematology
SPECIAL INTEREST GROUP

Convenor: Rennie Dix
Contact Address: C/- Anne Cooke, Laboratory Training Centre, Building 18, Auckland Hospital, Park Rd, Auckland. Fax (09) 307-4939

ADVANCE NOTICE:
An afternoon coagulation seminar will be held on the 11th November in the fourth floor lecture theatre at Auckland Hospital.

The guest speaker will be Dr Marilyn Manco-Johnson, Associate Professor of Paediatrics at the University of Colorado, supported by the Auckland Haemostasis Group.

Dr Manco-Johnson, a Paediatric Haematologist, will be visiting New Zealand sponsored by the Kirsty McDermott Trust and will speak on Paediatric coagulation which is her primary interest.

Further details pending.

Haematology Seminar

A one day Seminar will be held on Saturday, 29th May, 1993

in the
Ernest & Marion Davis Post-Graduate Medical Centre,
Auckland Hospital.

Blood Films Revisited

An interactive session on blood film interpretation and the use of parameters in the diagnosis of disease.

IMMUNOLOGY
SPECIAL INTEREST GROUP

Convenor: Gillian McLeay
Contact address: Laboratory Training Centre, Building 18, Auckland Hospital, Private Bag 92024, Auckland.

THE NORTH ISLAND SEMINAR
Those who receive the *ISIG Network News* will have read the various reports on this event. However, for our other colleagues, here are some recollections of a great weekend.

GUESTS AT THE SEMINAR
What began as a One Day Seminar to be held on Saturday 13 March at the Taupo Yacht Club, developed into a two day event with the addition of a Coulter Users' Flowcytometry Meeting on Sunday.

We have Charles Braan, who heads the Flow Cytometry Section in the Department of VIM at Auckland Hospital, and Elaine Scrugham from Coulter Electronics (NZ) Ltd, to thank for arranging this workshop.

It was our pleasure to welcome Dr Graeme Chapman PhD, Technical Support Manager for Coulter Electronics Pty Ltd from Sydney, who attended the Seminar on Saturday and chaired the workshop on Sunday. Dr Chapman flew out to the USA on Sunday evening where he was attending other meetings and workshops.

Our other guest was Professor John Clarke from the Department of Microbiology and Genetics at Massey University. Professor Clarke is responsible for the design and teaching of the Virology and Immunology sections of the BMLS course at Massey University. He was invited to the seminar to talk about the course structure and content with a cross section of Technologists working in these disciplines.

SATURDAY'S PROGRAM

The seminar was scheduled to start at 12.30 to give delegates plenty of time for a leisurely journey to Lake Taupo, which had been chosen as a venue because it was so central. This meant a three to four hour trip by car for most, although Joanne MacDonald flew up from Christchurch (courtesy of ISIG) and Jill Jones drove down from Northland.

The Taupo Yacht Club was a wonderful setting with large windows looking out over the lake. It was comfortably furnished and was the ideal size for the numbers present — approximately 60.

Topics for the program had been nominated by Network members. ISIG seminars have a rule that everyone must actively participate — this resulted in a full program chosen by the people attending. It was interesting that a large part of the program centred on the laboratory diagnosis of viral diseases.

Gerry Campbell from Wellington was in the chair to direct the proceedings.

Hepatitis C

Marjorie Bridle from Auckland started off the program with an excellent presentation on Hepatitis C. Some valuable discussion followed, and because it is such a major topic, it was a pity that people like Anne Couper from Auckland and Ron Mayes from Rotorua could not have been there to contribute also.

Chlamydia and other Sexually Transmitted Diseases

Another major topic getting a lot of attention lately is Chlamydial infection. There were two presentations covering this subject. "Confirmatory testing of Chlamydia EIAs" by Jane Humble of Wellington and "Chlamydia and other STDs in the Eastern Bay of Plenty" by Jackie Wright of Whakatane.

"The Rubella Dilemma"

There are some subjects which come up year after year and a specific example is Rubella — Rubella immunity and Rubella serology. Sugi Shaw from Palmerston North discussed ongoing problems in this field with regard to selection of tests, interpretation of results, and problems with financial constraints.

Laboratory diagnosis of Rubella — infection and establishing of immune status — is an area where standardisation of testing and reporting on a national level is sorely needed.

Life after the ANA Workshop

This type of cooperation for standardisation of testing and reporting has evolved from the ANA workshop in Wellington last year. David Haines from Auckland and Gerry Campbell described the procedures they have put in place to accomplish these objectives. There is general agreement that laboratories involved in ANA testing will take part in the QC-style program.

Testing for Herpes

Gerry Campbell shared his laboratory's experiences in problems associated with these tests and the steps taken solving them.

Rickettsial Serology

Judy Cull from the Virology/Immunology Department, Auckland Hospital gave an update on the current diagnostic tests available, with particular reference to those relevant to rickettsial infections in the South Pacific.

This is one of Judy's special areas of interest and she welcomes enquiries and requests for testing.

"ANCA the INOVA Way"

Glennis White from Wellington gave an informative account of her experience using the INOVA test for the detection of anti-neutrophil cytoplasmic antibodies which assist in the diagnosis of conditions such as Wegener's Granulomatosus. This presentation was another example of Glennis' wide range of knowledge and practical skills.

HEP_2 Slide Production

Still on the subject of methods for detection of autoantibodies, Jim Learmonth from Palmerston North shared details for producing HEP_2 slides (used for the detection of antinuclear antibodies) in the Laboratory.

The technique is simple, cost effective and not time-consuming. The quality of the end-product is consistent and standardised between batches. When commercially-prepared materials are such an expensive part of the budget, this information was welcomed by those involved in this area of Immunology.

Hydatids

This disease continues to cause problems in this country despite the existence of eradication programs for many years.

Paul Bolton from New Plymouth described the epidemiology and pathogenesis of the disease and went on to discuss two case histories and the problems encountered with interpreting the results obtained.

Mark Warden followed with a discussion on the performance, control and interpretation of the Arc 5 test, a sensitive immunoelectrophoretic technique for detecting active hydatid disease.

It is hoped that the member of the audience studying for examinations would have benefited from these presentations.

C3d Assays — ? an aid in the management of difficult pregnancies

Judith Hodgetts from Wellington introduced this interesting topic for discussion. This would be an ideal subject, which could be expanded and presented to a wider audience at the Christchurch Conference in August.

Christchurch Conference Update

Joanne MacDonald, one of the coordinators for the Immunology forums at Conference this year, described the arrangements so far for Immunology and the program as a whole. She encouraged presenters at the Seminar to consider giving a longer, more detailed presentation of their topics at Conference.

BMLS — Massey University

Professor Clarke outlined the structure and content for Virology and Immunology in Levels 300 and 400 (Years 3 and 4 respectively). He wanted to establish that what has been done so far is consistent with the requirements of the Laboratory Services, and to have guidance in the details of the 400 course.

There was some very worthwhile debate, with a number of recommendations being made.

An undertaking was given by David Haines from Auckland to consult immunologists with appropriate expertise in their discipline and in the education, training and setting of examinations also, to come up with specific details for the Level 400 course.

The details for the fourth year for Virology have been prepared already by Dr Ray Cursons from Hamilton.

BUFFET DINNER

The day ended with "Happy Hour" followed by a smorgasbord dinner which was also held at the Yacht Club. Some people returned home when the formal program ended, but the majority stayed on to enjoy the social side — an important part of any seminar where friendships are renewed, information is shared and lines of communication established.

SUNDAY'S PROGRAM

Flowcytometry: Coulter Users' Meeting

A number of seminar delegates elected to go to this workshop meeting also. However, Robert Allan from

Haematology, Waikato Hospital also came, plus a number of other people who were not Medical Laboratory Technologists, but were involved in the fields of oncology, animal research and water research.

Dr Chapman commenced by describing the new automatic XL Flowcytometer and discussed the advantages of the improved features it offers.

The second part of the meeting consisted of "trouble-shooting". Participants had sent in questions prior to the workshop and these were discussed and most were solved satisfactorily.

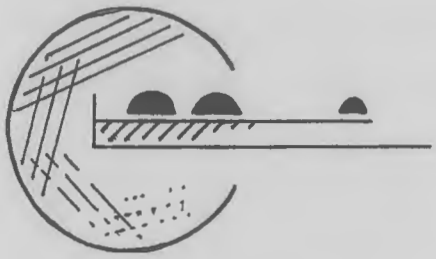
It was interesting that problems encountered with flowcytometry are much the same whatever field of work one is in, and therefore the general discussions were beneficial to everyone present.

Coulter turned on an excellent lunch, which was enjoyed outside in brilliant sunshine, before we all headed off home. ISIG would like to thank Dr Chapman, Coulter Electronics (NZ) Ltd and Elaine Scrugham for a very worthwhile meeting.

FUTURE OF NORTH ISLAND SEMINAR

The whole weekend was considered a great success and the general consensus was that it should become a regular feature of ISIG's annual program.

So, see you next year, same venue, same time, same format combining Seminar and Flowcytometry meeting. Details will be published closer to the event.



MICROBIOLOGY

SPECIAL INTEREST GROUP

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

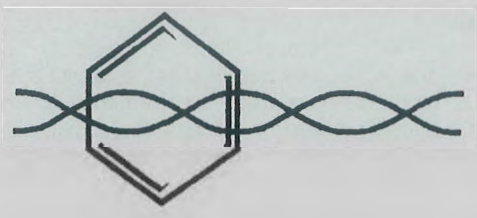
Antimicrobial symposium and workshop
8th and 9th July 1993
Marion Davis Library, Auckland Hospital

JOIN US IN AUCKLAND AT A BREAKPOINT IN 1993

2 Days of participation with Overseas Guest Speakers.

A wide range of perspectives
looking at Antimicrobials

Trade Displays, Entertainment and Social mixing.



BIOCHEMISTRY

SPECIAL INTEREST GROUP

Convenor: Alison Buchanan
Contact Address: Clinical Chemistry Dept, Auckland Hospital, Park Road, Auckland.

Joint Meeting

of the

New Zealand Branch of the AACB

and the

NZIMLS Biochemistry Special Interest Group

Marion Davis Medical Centre, Auckland Hospital
June 18th - 20th 1993

PROGRAM

Friday 18th June - **AACB New Zealand Branch Scientific Meeting**

Quality Assurance - "Problem Analytes"

Mr Lloyd Penberthy of the AQAP has been invited as a keynote speaker to address the meeting on this topic.

Proffered Papers

Annual General Meeting

Conference Dinner

Saturday 19th June - **NZIMLS Seminar "Immunoassay, Past Present and Future"**

09:00 - 10:15	Antigens and Antibodies	-	Dr. J. France
	Qualitative Immunoassays	-	Ms A. Buchanan
10:45 - 12:00	Quantitative Immunoassays	-	Dr. J MacKay
	Labelled Immunoassays	-	Mr J. Keelan
13:00 - 15:00	Current Methodologies & Instrumentation (Concurrent oral and video presentations)		
	TDx/IMx	-	Dr. R. Hawkins
	RIA/IRMA	-	Radioassay Lab AH
	EMIT/CEDIA on Hitachi's	-	Mr I. Green
	Stratus	-	Mr J. Speed
	ES300/Amerlite	-	Dr. R. Johnson
15:30 - 16:30	New Technologies		
	Chemiluminescence, the ACS-180 experience.	-	Dr R. Pratt
	Other aspects, speakers and topics	-	Yet to be confirmed

Wine and Cheese

Sunday 20th June - **AACB NZ Branch Education Meeting**

Contact Mr Don Mikkelsen at Waikato Hospital for further details
Phone (07) 839-8616 or Fax (07) 839-8759

Joint Meeting

of the

New Zealand Branch of the AACB

and the

NZIMLS Biochemistry Special Interest Group

June 18th - 20th 1993

REGISTRATION FORM

Title _____ First Name(s) _____ Surname _____

Hospital/Company _____

Address _____

_____

_____

Phone _____ (Bus/Home) Fax _____

Preferred text on Name Badge _____

Title of Laboratory Communication _____

Accommodation	No. of Nights	Date of 1st Night	
GL/NWH Staff Residence ($25/night)			$
Grafton Oaks ($125/night/single)			$
($135/night/double)			$_____
Accommodation deposit (one night)			$

Conference Dinner ____ ticket(s) @ $35/person $

Registration Fees

Single Day - $30	$
Any Two Days - $50	$
Full Three Days - $75	$_____
TOTAL	$

Late Registration fee - $35/day
Registrations close at 17:00 on June 4th

Please make cheques payable to the "Biochemistry Special Interest Group"

The Grafton Oaks is situated some 200m from Auckland Hospital while the Greenlane staff residence is about 6km away (a $10 taxi ride). Some transport may be available.
Abstracts for the Laboratory Communication should be typed on white paper in a box 170 X 120mm and preferably sent with your registration form.

Mail your completed forms and cheques to : Dr C W Small
Dept of Clinical Biochemistry
Greenlane/National Womens Hospital
Auckland 3

TRANSFUSION SCIENCE

SPECIAL INTEREST GROUP

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

TRANSFUSION MEDICINE AUDIO UPDATES
Since May last year, TSSIG has been offering these cassette tapes of transfusion medicine topics. We now have eleven different topics available and have distributed thirty-four issues around New Zealand. Although at this level of interest TSSIG is not covering costs, many people are finding the tapes very useful and we hope to continue the scheme for at least another twelve months. For complete information about the topics available and an order form, see elsewhere in this newsletter.

N.I.C.E. WEEKEND
Over forty-five blood bankers from around the country enjoyed another NICE Weekend at Wairakei in April. I'm sure all participants will judge it to have been the usual huge success, and we extend our thanks to David Wilson for all the work he puts into organising this event.

This year's event had the added attraction of a one-day seminar on the following Monday, presented by the Therapeutics Section of the Department of Health concerning the implications of the Medicines Act for the registration, manufacture and quality of blood and blood products.

Presentations from the NICE participants covered a wide range of topics. There were presentations on fibrinogen, HDN, quality assurance, HIV, platelets, rare blood groups, HCV, case studies, paternity testing, and even MUD! We will publish some of these in abstract form, or in greater detail if I can persuade the presenters to co-operate, in later issues of the TSSIG news.

EXAMS
Applications for the NZIMLS and NZMLTB examinations close at the end of this month. Application forms were published in the March Journal. If you plan to sit an exam this year, make sure your application form is in now.

LITERATURE REVIEWS
We don't have so many original articles to publish this month, so I thought I'd use the space to bring you some information from recent publications. I've selected a few that were of personal interest to me, but I'd like to reflect your tastes as well. Next time you read a useful article, attend an interesting lecture, learn or do something worth sharing, why not drop me a line at the contact address above and tell me about it.

Hepatitis C
A September 1992 issue of the Lancet contained a report of an Italian study by Alfredo Alberti et al which suggests that HCV-RNA testing can differentiate which HCV antibody positive individuals have chronic liver disease. If the HCV-RNA is negative and ALT not elevated, the individual may have recovered from the infection, whereas HCV-RNA positive individuals should be biopsied to determine the extent of liver disease. This article suggests that active viral infection as determined by the presence of HCV-RNA is strongly associated with liver damage.

A recent study by Patricia Farci published in Science found that HCV infection in chimpanzees does not induce protective immunity. Chimpanzees can be reinfected with the same viral strain or a different strain. This is particularly significant in terms of development of a future vaccine against hepatitis C.

HIV
Thailand recently introduced HIV-1 antigen testing of blood donations. A recent study from Thailand reported in a letter to the editor in the Lancet found that sixty post-transfusion HIV-1 infections annually, could be prevented by screening for the antigen. Thailand has a very high incidence (0.4%) of HIV-1 antibody in their donor population.

Kidney transplants
A study by Paul Nelson et al, published in the November 1992 American Journal of Surgery reports on experiences transplanting kidneys across the ABO barrier. In general major ABO incompatibility is a contraindication for renal transplantation — transplantation of a group A or B kidney into a group O recipient results in hyperacute rejection of the donor kidney. However, group A2 kidneys transplanted into group O or B recipients had good survival if the recipient's IgG anti-A titre was 8 or below.

These findings (and a recent examination answer) notwithstanding, it is not New Zealand policy to cross the ABO barrier in renal transplantation.

Creutzfeldt-Jakob Disease
Creutzfeldt-Jakob disease is characterised by a rapidly progressive dementia which is accompanied by other neurologic symptoms. In most cases the disease arises spontaneously, but it can be spread by injecting diseased neurologic tissues into healthy individuals. This has occurred from cornea transplants, infected instruments during neurologic surgery and infected pituitary growth hormone.

Little is known about the causative agent. It may be caused by prions. Prions are toxic proteins that accumulate and appear to have an infectious nature.

A study by T. Esmonde et al published in a January issue of the Lancet evaluated the epidemiologic evidence concerning possible transmission of Creutzfeldt-Jakob disease by blood transfusion. Sporadic cases differ from growth-hormone-induced cases, and the assumption was made that if blood transfusion was a cause, such cases would resemble the hormone-induced cases. Of 155 matched cases studied, the percentage of Creutzfeldt-Jakob disease patients receiving blood transfusions was found to be similar to the control group. In addition, the case presentation of transfused patients resembled the sporadic cases and not the hormone-induced cases.

This study suggests that blood transfusion does not cause Creutzfeldt-Jakob disease to any large degree, although it does not rule out the possibility of isolated transmission by blood transfusion. The authors support the conservative recommendation that patients with or at risk of Creutzfeldt-Jakob disease be permanently excluded from donating blood.

Automation

The October supplemental issue of the American Journal of CLinical Pathology contained a review by Fred Plapp et al of automation in blood banking. Although large blood centres often use automated machines for blood grouping, there are few instruments suitable for pretransfusion testing by hospital blood banks and smaller laboratories.

Plapp and Rachel describe the ideal instrument as being able to perform blood grouping, antibody screening and a major crossmatch and possessing the following features:

— A bidirectional interface with the laboratory system to facilitate order entry.
— Bar code reading of specimen labels to reduce identification errors.
— Direct closed-tube sampling of whole blood to reduce infectious disease risk.
— Automatic reagent dispensing.
— Elimination of centrifugation.
— A random access operating mode to facilitate stat testing.
— Automatic comparison of current and previous test results and flagging of discrepancies.
— Automatic updating of the patients files in the laboratory computer system.
— Multiple analyses to increase test output.

Such a system would decrease clerical and identification errors, occupational health risks and labour costs.

Current approaches towards semi-automation have used microplate technology for liquid red cell agglutination and solid phase red cell adherence. There is also the potential to use microtubes for gel tests.

The greatest hindrance to automating immunohaematologic testing is the continued reliance on the antiglobulin test — cell washing and centrifugation steps are difficult to automate. Only future advancement of technology may enable the development of equipment appropriate for hospital blood banks and small laboratories. Ironically, it is small laboratories, who generally use less qualified staff and do limited or individualised testing, that would most benefit from foolproof, effective techniques, comparable to a dipstick for blood grouping.

ARTICLES OF INTEREST

SIGNIFICANT HLA AND DISEASE ASSOCIATIONS

Jacinta Payne
Transfusion Medicine, Dunedin Hospital.

Disease	HLA
Juvenile diabetes mellitus	DR4, DR3, B8, B15
Psoriasis vulgaris	Cw6, B37, Dr7, B13, B17, Cw6, B37
Idiopathic haemochromatosis	A3, B7, B14
Behcet's disease	B51, B5
Hydralazine-induced lupus	DR4
Karposi sarcoma	DR5
Rheumatoid arthritis	DR4
Systemic lupus erythematosus	DR3, B8
Gold-induced thrombopenia	DR3
Gold-induced nephropathia	DR3
Grave's disease	B35, DR3, B8
IgA glomerulonephritis	DR4, B35
Chronic active hepatitis	DR3, B8
Multiple sclerosis	DR2, B7
Myasthenia gravis	B8
Hashimoto's thyroiditis	DR5
Optic neuritis	DR2
Narcolepsy	DR2
Ankylosing spondylitis	B27
Felty's syndrome	DR4
Congenital adrenal hyperplasia	Bw47
Reiter's disease	B27
Dermatitis herpetiformis	DR3, B8
IgA deficiency	DR3
Goodpasture's syndrome	DR2
Pemphigus vulgaris	DR4, A26, B38
Celiac disease	DR3, DR7, B8
Acute anterior uveitis	B27
Sjogren's syndrome	DR3, B8
Addison's disease	DR3, B8
Autoimmune thrombocytopenia	DR2

Reference: Significant HLA and Disease Associations
Dr V Lenhard
Biotest Diagnostics

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.

SPECIALIST LEVEL EXAMINATIONS 1992
EXAMINERS' REPORTS

MICROBIOLOGY

CANDIDATES: 15 entered, 14 sat, 9 passed, 5 failed.
RANGE OF MARKS: The top mark was 58%, the low mark 36% with the average being 50%.
Paper 1 ranged from 62.5% to 39%: Average 52%
Paper 2 ranged from 56.5% to 31.5%: Average 47%
OVERALL COMMENTS: We were very disappointed with the lack of knowledge exhibited by most of the candidates.

Our impression was that they were not exposed to fundamental interpretative decision making re the suitability and processing methods that they used, or had knowledge of, in their day to day work.

Very few candidates knew of the correct application of many of the test processes.

The Introduction to the Microbiology Specialist Level Syllabus 1.1 among other things requires candidates to:
— critically evaluate methods and equipment
— discuss knowledgeably, with Medical staff, the results obtained with regard to:
— validity
— suitability of the lab procedure
— other lab practices that may be applicable to the particular patient.

The majority were unable to demonstrate this level of knowledge to the satisfaction of the Examiners.
RECOMMENDATION: It may well be that any future candidates should be encouraged to sit this Examination NO SOONER THAN 2 YEARS POST REGISTRATION and that concurrently they have no less than 4000 hours experience in the clinical laboratory environment.

TRANSFUSION SERVICE

PAPER ONE:
The paper consisted of 5 compulsory questions each worth 20 marks.
QUESTION 1 (Range 3-11.5; Mean 8.2)
Not well answered.
(e) the Much antigen: 3 candidates failed to score any marks
QUESTION 2 (Range 11-18; Mean 14)
This question was fairly well answered. One candidate demonstrated an excellent understanding of this subject.
QUESTION 3 (Range 10.5-14; Mean 11.8)
Most candidates demonstrated a surface understanding of the topic — but most answers were disappointing and offered no depth of knowledge.
QUESTION 4 (Range 11-14; Mean 12.1)
Fairly well answered — did not display specialist level knowledge.
QUESTION 5 (Range 11-14½; Mean 13)
Reasonably well answered — lacked some clarity and depth of knowledge.
COMMENTS
NZCS and Certificate level notes were in evidence — specialist level candidates need to be made aware of the level of knowledge required to attain a specialist qualification.

PAPER TWO:
The paper consisted of 5 compulsory questions each worth 20 marks
QUESTION 1 (4 passes; range 6.5-17.5)
In general this question was reasonably well answered with a good understanding of the basics. However, no candidate demonstrated a good understanding of A1/A2 subgroups, an area which was discussed recently in the NZJ Med Lab Sci 45:4, 1991.
QUESTION 2 (2 passes; range 1.5-15.5)
Two candidates answered this question well, however 3 candidates answered this question extremely poorly (with marks less than 6). This topic has been recently discussed in the NZJ Med Lab Sci 46:2, 1992.
QUESTION 3 (1 pass; range 4.0-10.5)
No candidate answered this question well with a top mark of 10.5!!! This question is very basic to a specialist immunohaematologist and has also been very recently reviewed (NZJ Med Lab Sci 46:2, 1992).
QUESTION 4 (4 passes; range 6.5-17.0)
This question was quite well answered by 3 candidates. However, only one candidate showed any knowledge of the Polynesian Lewis system, an area which has been the topic of papers in the NZJ Med Lab Sci, Vox Sang and Institute Conferences. It was disappointing that no candidate was up-to-date with the literature post 1985 (esp Vox Sang 1986; 51, 161-171).
QUESTION 5 (2 passes; range 6.0-13.5)
Only one candidate demonstrated a good understanding of this question. Most candidates failed to structure their answer and gave very superficial answers.
COMMENTS
The quality of the answers was variable ranging from 1.5 to 17.5. Only two of the five candidates were of good specialist calibre. It is somewhat disturbing to see that the two questions that candidates found the most difficult were the practically based questions (Q3 & Q5). Additionally it was clear that candidates were not aware of work that is topical to NZ or published in the NZJMLS, reviewed in Vox Sang and Transfusion but instead relied solely on texts such as 3rd ed. Issitt which is now out of date in some areas!!!

HISTOLOGY

PAPER ONE:
QUESTIONS 1-54
54 questions had a possible 80 correct answers carrying a total of 60 marks. Therefore each correct answer = 0.75 marks.

There were a possible 163 incorrect answers, therefore if all the boxes were ticked the final mark would = 0. Thus 1 incorrect answer gave a 60/163 mark penalty.
QUESTION 55
The question was not read properly the key word being list not essay.
QUESTION 58
The key word was "selective" — the methods given demonstrated the stated granules, cells and bodies, but not selectively.

PAPER TWO:
Artifacts in tissue sections:
The essay was poorly planned and structured. A large amount of time was devoted to technical details. Fixation artifacts were poorly dealt with. Distortion, Shrinkage, Pink's Disease, Nuclear Meltdown etc were omitted. No mention was made of bone re sawing, drilling, decalcification etc. Processing was not discussed. Microtomy — it was assumed the examiner would know that disposable blades were being used.

Chromaffin was wrongly attributed to the action of chromates on 5HT to form tetrahydra-4-carbolamine. Little detail was given of manipulation, mounting on waterbaths, drying of sections, dehydrating cover slipping, fading etc. EM was not discussed at all.

The role of special stains and Immuno-histochemistry in Histopathology
The range of special stains available was not commented on. Immunotechniques were focused on. The question did not ask candidates to discuss the theory of staining or methods — the key word being role.

HAEMATOLOGY

Ten candidates sat the examination with only four gaining a pass mark. Final marks ranged from 39% to 62%.

We were disappointed in that the calibre of candidates presenting themselves for this examination was little different from last year. Only one candidate achieved an overall mark in excess of 60%. Candidates frequently displayed only a superficial knowledge of general haematological topics as well as an apparent unawareness of recent diagnostic and therapeutic advances.

PAPER ONE
The mean mark for this paper was 41%, the range 38.5% to 64.5%. This short answer paper was quite full and a few candidates jeopardised their marks by not attempting all questions.

QUESTION 1
7 of 10 candidates gained a pass mark.
This question was generally well answered with most candidates having reasonable knowledge of the use of at least two of the three venoms.

QUESTION 2
3 of 10 candidates gained a pass mark.
Not well answered generally. Most candidates were satisfied with writing only a single fact for the brief notes.

QUESTION 3
4 of 10 candidates gained a pass mark.
On the whole not well answered. Only a basic understanding of the concept of the choice of populations for determining reference ranges was demonstrated. There was a lack of methodical approach to defining a protocol for calculating reference ranges and establishing reference intervals.

QUESTION 4
3 of 10 candidates gained a pass mark.
It was surprising to see how little awareness there was of the haematological manifestations of the acquired immune deficiency syndrome. Although most candidates described the reduced numbers of CD4 lymphocytes, they frequently did not reconcile this with an absolute lymphopenia. Aspects of AIDS generally not alluded to included the consequences of AZT treatment. Kaposi's sarcoma and occurrence of the Lupus anticoagulant.

QUESTION 5
6 of 10 candidates gained a pass mark.
The majority of candidates showed a reasonable working knowledge of the biochemical nature of vitamin K and warfarin. Less theoretical knowledge on the development and use of the INR was evident.

QUESTION 6
9 of 10 candidates gained a pass mark.
Generally adequately answered. Most candidates thought about the therapeutic use of the product and tended not to mention potential problems with the use of the blood products, eg infections etc.

QUESTION 7
All 10 candidates gained a pass mark.
This question required the candidates to document in tabular form, the expected cytochemical, immunophenotypic and cytogenetic findings in a range of acute and chronic leukaemic conditions. The high pass rate probably does not accurately reflect the true extent of knowledge on this topic. The requirement for an indication of only positive or negative results almost certainly lead to good marks being obtained through educated guess work.

QUESTION 8
5 of 10 candidates gained a pass mark.
The technique of monoclonal antibody production was either well explained or the point missed with polyclonal antibody production described. The use of monoclonal antibodies was generally adequately answered in as far as naming specific antigenic targets. However, the laboratory techniques were not generally mentioned, eg latex, FITC, APAAP, ELISA.

QUESTION 9
6 of 10 candidates gained a pass mark.
While one candidate gave an excellent description of the principles employed in the Technicon H1/H2 for the cytochemical differentiation of leucocytes, other candidates exhibited little better than a rudimentary understanding of the concepts for leucocyte differentiation utilised in modern analysers. No candidate was able to quote the reference method for WBC differential counts.

QUESTION 10
8 of 10 candidates gained a pass mark.
With the exception of two candidates this question was well answered. As with most safety aspects in the laboratory fire safety is generally a matter of common sense and therefore marks are readily available with a little thought.

QUESTION 11
5 of 10 candidates gained a pass mark.
This question was not well answered. Even the candidates who gained a pass on this question did not score well. Most candidates only demonstrated limited knowledge on one or two of the three assays.

QUESTION 12
8 of 10 candidates gained a pass mark.
This question on thalassaemia was generally well answered.

QUESTION 13
6 of 10 candidates gained a pass mark.
Two candidates gave very good answers and were awarded full marks for this question. Most other candidates were only able to give a definition of proto-oncogenes and showed poor understanding of the mechanisms of activation and the role of oncogenes in the pathogenesis of haematological neoplasms.

QUESTION 14
Only 2 of 10 candidates gained a pass mark.
The answers to this question on erythropoietin were generally disappointing, especially given the large amount currently in the journals about erythropoietin use. One very good answer was written.

QUESTION 15
5 of 9 candidates gained a pass mark.
Apart from one very good and one good answer, there seemed to be an almost total ignorance on the subject of Haemochromatosis.

QUESTION 16
Only 1 of 8 candidates gained a pass mark.
This question on the anaemia of hepatic disease was very badly answered with only one candidate gaining a pass mark. There was a lack of appreciation of the types of anaemia which may complicate liver disease and scant knowledge of the aetiologies of each type of anaemia.

PAPER TWO
The mean mark for this paper was 45% with a range from 29% to 60.5%.

QUESTION 1
This question on the thrombocytopenias was attempted by 8 candidates with 5 gaining a pass mark.

The mean mark was 13.5 out of 25. Classification was generally logical though some tended to repeat themselves. A classification in note or tabular form was quite acceptable and easier to follow than sentences which may have had several points within one sentence. The role of the laboratory could have been answered more fully.

QUESTION 2
This question on the Myelodysplastic Syndromes was the most popular in Paper Two, and was attempted by all candidates. Only 3 of the 10 candidates gained a pass mark. The mean mark was 11 out of 25 with a range of 6.5 to 14.5

MDS is a well established group of disorders of considerable haematological importance and has featured frequently in previous Certificate and Specialist level examinations. It was therefore somewhat surprising that the question was not better handled. Most candidates gave a good classification of Primary MDS and the defining characteristics in terms of blast cell numbers in blood and marrow. Causes of secondary MDS were seldom mentioned. Particular areas of weakness included the value of bone marrow histology and the role of cytochemistry and cell surface marker studies. The section on cytogenetics was not well answered and the majority of candidates had little appreciation of the prognostic features.

QUESTION 3
This question on the classification and investigation of haemolytic anaemia was popular with 9 of the 10 candidates attempting it. The question was poorly answered in the main with only three candidates achieving a pass mark and two of those by a narrow margin. The mean mark was 10.7.

It may be a reflection on the volume of data that students have to absorb that much of the supporting theory about practical subjects is lacking depth. Most of the candidates were able to list a variety of appropriate tests covering a variety of haemolytic processes but the depth of knowledge as to why the investigations are performed and the classification of haemolytic anaemias appears to be sadly lacking.

QUESTION 4
This question on bone marrow transplantation was only answered by 2 candidates. This was disappointing, but one answer was very good showing a good general grasp of the principles and issues involved in this important treatment modality. Though not strictly a laboratory procedure, many of the techniques employed, such as donor selection and source of stem cells, involve laboratory practice and these and other similar topics should have been within the reading of Specialist level candidates.

QUESTION 5
This question on the evaluation of a new analytical method and its subsequent establishment as a routine procedure was attempted by 5 of the 10 candidates. It was not well answered with only one candidate gaining a pass mark. Mean mark was 9.2 out of 25 with a range of 6.2 to 12.75. Most candidates gave an adequate discussion on selecting suitable methods for evaluation and determining their applicability, however few made mention of ICSH recommendations. Poorly handled was the rationale for comparison with a reference method, establishment of appropriate quality control, safety considerations and establishment of workload units.

QUESTION 6
Six of the ten candidates attempted this question on thrombosis. The mean mark being 9. One candidate answered the question just well enough to gain a pass mark. The other five candidates answered the question poorly. Once again the candidates appeared to be able to list the more common causes of thrombosis but showed little depth of knowledge of the mechanisms or principles involved in the testing for thrombosis. This may again reflect the enormous gains in knowledge such that it is difficult to attain the desired standard in one year's study.

CLINICAL BIOCHEMISTRY

Five out of six candidates passed.

Overall the candidates showed a better exam technique than last year; with the majority of candidates attempting every section of the paper with equal vigour. However supervisors should continue to stress the importance of reading the questions and structuring the answer to the question.

PAPER 1
QUESTION 1
Lactate calculation; 2 out of 3 passed; none of the candidates could explain why the theoretical absorbance could be different from the observed absorbance.

QUESTION 2
HPLC; 2 out of 2 passed; this question is based on last year's HPLC question which was answered very poorly.

QUESTION 3
Safety; 2 out of 6 passed; candidates gave poor coverage of risks involved and follow up procedure after body fluid exposure. This is very disappointing since a safe working environment is essential for all laboratory workers.

QUESTION 4
Lipids; 1 out of 4 passed; this question was poorly answered — particularly the interpretation of electrophoresis patterns.

QUESTION 5
Thyroid function; 5 passed out of 6; candidates gave a good account of this topic.

QUESTION 6
2 out of 4 passed; the calculation section was answered well but the question on two analytically different methods for either creatinine or potassium was answered either very well or very poorly.

QUESTION 7
Method evaluation; 5 passed out of 5; this question was well answered.

QUESTION 8
Therapeutic drug monitoring; 4 passed out of 6; this question was answered well despite some confusion over definitions.

QUESTION 9
3 passed out of 6; diagnostic criteria for diabetes mellitus was a weak area.

QUESTION 10
Cellular distribution of sodium and potassium; 1 out of 6 passed; the distribution of sodium and potassium was poorly answered. Not all candidates used graphs to display the results as was requested.

PAPER 2
QUESTION 1
Laboratory audits; 2 out of 2 passed; this question was answered well.

QUESTION 2
Cystic fibrosis; 3 out of 5 passed; the clinical features and performance of a sweat test was answered well, the role of blood spot testing and DNA testing was poorly answered (these should be included in next year's paper).

QUESTION 3
Reliability of laboratory results; 3 out of 5 passed; preanalytical variables were well covered, weaknesses showed in analytical variables.

QUESTION 4
Renal failure; 2 out of 2 passed; this topic was well understood.

QUESTION 5
Serum calcium; 3 out of 5 passed; this question was not answered well.

QUESTION 6
Sample reception protocols; 4 out of 5 passed; candidates showed a good understanding of the information required.

ACS:180™ Automated Chemiluminescence System

System Description:

- The first fully automated, random access, chemiluminescent immunoassay system
- Utilizes nonisotopic, chemiluminescent technology for greater sensitivity than other immunoassay procedures

STOP PRESS!

- Now available
- Totally Automated Random Access
- B12 and Folate Assays

Menu:

A comprehensive menu of 25 immunoassays:

Thyroid:	T4* T3* T-Uptake* TSH* FT4* FT3
Reproductive:	HCG* Prolactin* Estradiol LH* FSH* Progesterone
Anemia:	B12* Folate* Ferritin*
Cancer:	CEA AFP PSA
Cardiac:	CK-MB*
TDM:	Digoxin* Theophylline
Other:	PTH IgE* Cortisol β_2M

*Available at introduction

Throughput:

- Time to first test result...15 minutes
- 180 tests per hour (one every 20 seconds)

Flexibility:

- Can be run in random access and batch mode
- Operates for more than sixty minutes after loading on-board supplies
- STAT-Interrupt capability when needed

Ready to operate:

- Fully operational within one week of installation—including setup, training, and crossover validation

SCIANZ CORPORATION LIMITED

46 Lake Road, Northcote, Auckland, New Zealand. P.O. Box 6848, Auckland.
Ph 64-9-480 7060. Toll Free 0800 733 464. Fax 64-9-480 7090.

CIBA·CORNING

ROCHE

Roche Products (New Zealand) Ltd

Title	Roche Products Clinical Chemistry Award.
Donor	Roche Products (New Zealand) Ltd
Nature	An award of two hundred dollars ($200.00) will be made biennially to the author of the best original or review article concerning Clinical Chemistry published in the New Zealand Journal of Medical Laboratory Science.
Eligibility	All financial members of the New Zealand Institute of Medical Laboratory Science (Inc).
Method of Entry	Publication of an original or review article in the Journal.
Date of Entry	All original and review articles on the specified subjects which have been published during the two year period ending December 1993 will be considered for this award.
Judging	The judging panel shall consist of the Editor of the Journal, the President of the Institute and a person nominated by the donor company. If, in the opinion of the judging panel, the standard of the articles does not merit an award or if there are no eligible articles in any one judging period, then no award shall be made.

Baxter

Title	Baxter Haematology Award
Donor	Baxter Diagnostics Pty. Ltd
Nature	An award of two hundred dollars ($200.00) will be made biennially to the author of the best original or review article concerning Haematology or Immunohaematology published in the New Zealand Journal of Medical Laboratory Science.
Eligibility	All financial members of the New Zealand Institute of Medical Laboratory Science (Inc.).
Method of Entry	Publication of an original or review article in the Journal.
Date of Entry	All original and review articles on the specified subjects which have been published during the two year period ending December 1993 will be considered for this award.
Judging	The judging panel shall consist of the Editor of the Journal and the President of the Institute. If, in the opinion of the judging panel, the standard of the articles does not merit an award or, if there are no eligible articles, then no award shall be made.

Baxter Diagnostics Pty Ltd

Funding of Clinical Training

Chris Kendrick
Massey University

In 1992 the Minister of Health established an advisory group, headed by Professor David Stewart of Otago University, to consider the issues of education and training of health professionals arising from the proposed health reforms. Their purpose was to ensure the continuing availability of a highly qualified and well trained health workforce in New Zealand. The issues considered include those of health workforce planning, "teaching" hospital costs, source of funding for education and training programs for health professionals, purchasing arrangements for these programs, funding of research in Crown-owned health agencies and issues arising from the transition to the new arrangements.

As part of the process the Advisory Group invited submission from bodies representing each of the professional health care groups and, through them, from interested individuals. The council of the NZIMLS provided a submission that targeted concerns over funding of technologist training, the oversupply of trained staff and the industrial "status" of students during the fourth year placements.

Recommendations of Advisory Group

The Advisory Group after consideration of the issues and submissions, made a number of recommendations to Government in mid 1992:

- that the Government be committed to maintaining a health workforce database, to provide information for workforce forecasting. This would be needed to inform policy concerning priorities for funding of health professional education and training programs.
- that all costs (with respect to "teaching") of hospitals be met from income received for specific contracts with the respective purchasing bodies for the provision of health care services, research, or clinical education and training.
- although there could be significant gains from sourcing all funding of education and training for health professionals within a single Vote, the transition costs would be high. It is therefore recommended that the funding of education and training of health professionals continue, at least for the period of the transition, to be sourced in both Vote: Education and Vote: Health, but with clearer definition of the responsibilities of each.
- it is recommended that Vote: Education be responsible for all funding of education and training of health professionals until the completion of the entry qualification and that all post-entry education and training be the responsibility of Vote: Health.
- it is recommended that there be no change in the purchasing arrangements for Vote: Education funded education and training of health professionals apart from any adjustments required for post-entry funding. For Vote: Health funded programs, it is recommended that a Health Professional Education and Training Agency be set up to act as the purchaser on behalf of the Government.
- it is recommended that the bulk allocation to the Health Research Council be adjusted to allow for the increased costs of public good research resulting from the necessity to meet all costs of such research in Crown-owned agencies after 1 July 1993.

In addition the Advisory Group makes a number of recommendations concerning transitional issues. These include the necessity to properly identify the proportion of current Area Health Board expenditure used to support education, training and research, the definition of respective responsibilites of Education and Health for future funding of education and training programmes, the establishment and funding of the proposed Health Professional Education and Training Agency through the transition, and the making of agreements between education and health care providers concerning rights and responsibilities of all those concerned with education and training within health care facilities.

Taken from the "Report to the Minister of Health from the Advisory Group on the Funding of Clinical Training".

Government policy

The Government has considered the Advisory Group recommendations and appear to have made the following decisions:

In a letter to the General Managers of the NZ Area Health Boards, 22 December 1992. From the Department of Health, Wellington.

- the funding agreements between the Minister of Health and Regional Health Authorities (RHAs) will include provision for the RHAs to purchase from crown health enterprises (CHEs);
  - — till 30 June 1994, the same research programs; and
  - — till 31 December 1994, the same clinical training programs (at both undergraduate and graduate level);

  that exist on 30 June 1993 and are funded from block area health board (AHB) grants;
- from 1 July 1994, health care providers should seek to recover the costs associated with research, including "public good" research, undertaken by other parties using their facilities;
- from 1 January 1995, all health care providers should meet the costs of providing clinical training, net of benefits, through contracts with institutions providing educational qualifications, or with whatever "purchasing" agency that may be responsible for this function.
- the Minister of Health may, over the period:
  - — 1 July 1993 to 30 June 1994 (for research programs); and
  - — 1 July 1993 to 31 December 1994 (for clinical training programs);

  approve variations proposed by RHAs in the clinical training and research programs that were in place at 30 June 1993.
- funding responsibility for the education and training of health professionals will continue to be shared from 1 January 1995 between Vote: Education and Vote: Health, but with clearer responsibilities between the two. Vote: Education will be responsible for all "pre-entry" level programs (ie all programs leading to entry to an occupational group) and Vote: Health responsible for all "post-entry" programs (except where they are of an academic or research nature). Officials should begin work to resolve this issue in the middle of next year and at the same time, also consider the issue of the "purchaser" responsible for Vote: Health funds.
- an Advisory Committee, comprising members with health educational, research and provider experience, will be established in the new year. This committee, reporting to the Director-General of Health, will be chaired by Professor Michael Cooper, Commissioner of the Otago AHB. It will assist in the transition phase to provide advice on:
  - — the purchase agreements for clinical training and research programs that the Government requires in the funding agreement with the RHAs; and
  - — any outstanding issues arising from the Advisory Group recommendations; and
- AHBs/CHE board designates should not discontinue or reduce the clinical training and research programs that exist on 1 January 1993, without first seeking approval from the Minister of Health.

INSTITUTE BUSINESS

Office Bearers of the N.Z.I.M.L.S. 1992-1993

President
Paul McLeod
Microbiology Dept., Nelson Hospital

Vice President
Dennis Reilly
Diagnostic Laboratory, Auckland

Secretary/ Treasurer
Shirley Gainsford
Valley Diagnostic Laboratory, Lower Hutt

Council
Ted Norman, Les Milligan, Jim Le Grice, Geoff Rimmer, Chris Kendrick

Executive Officer
Fran van Til
P.O. Box 3270, Christchurch
Phone/Fax (03) 313-4761.

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

Editor
Maree Gillies
Microbiology Dept., Auckland Hospital or The Editor, P.O. Box 9095, Newmarket, Auckland.

Membership Fees and Enquiries
Membership fees for the year beginning April 1, 1991 are:

For Fellows — $88.40 GST inclusive

For Members — $88.40 GST inclusive

For Associates — $33.80 GST inclusive

For Non-practising members — $33.00 GST inclusive

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.

Membership Sub-Committee Report — February 1993

Since the November meeting there have been the following changes:

	23.02.93	11.11.92	23.08.92	12.05.92
Membership	1242	1244	1256	1183
less resignations	3	7	27	6
less G.N.A.	8	19	19	-
less deletions	3	-	-	-
less deceased	-	-	-	-
less duplications	1	-	-	1
	1227	1237	1210	1181
plus applications	10	5	34	75
plus reinstatements	-	-	-	-
	1237	1242	1244	1256
Composition				
Life Member (Fellow)	12	12	12	12
Life Member (Member)	5	5	5	5
Fellow	20	20	20	20
Member	679	678	678	671
Associate	436	443	443	462
Non-practicing	59	68	60	60
Honorary	26	26	26	26
Total	1237	1242	1244	1256

Applications for Membership
M. WALLMANNSBERGER, Tauranga; C. MARTIN; R. ALLAN, Dunedin; B. LOCKWOOD; J. BRIDGETTE, Auckland; C. PRETORIUS; P. LINDSAY; S. MARTIN, Medlab, Auckland; F. KHAN, Overseas; S. BECKMAN, ARBC.

Gone No Address
A. SINCLAIR, Taranaki; J. GALLAGHER; K. EAYRS, Wellington; M. MATSIS, Christchurch; C. HOPE, Wellington; P. MARRIOTT, Wellington; G. VADIVELOO, Wellington, Medlab; K. PAYNE, Diagnostic.

Resignations
Y. CASEY; G. COATS, Waipukurau; M. KANG, National Womens.

B TECH (BIOMEDICAL SCIENCE)

Professor Peter Gluckman, Dean of the Auckland Medical School, whilst recently launching the School's Strategic Plan outlined the introduction in 1994 of a new 4 year technology degree in Biomedical Science.

The degree awaits final approval by the University Academic Committee but draft details available read as follows. This course is intended to provide an appropriate academic background for a professional career in biomedical research and development. Graduates would receive a rigorous training in the scientific and technological bases of biomedical science, as well as experience in research design, problem solving and management. It is not the primary intention of this course to train hospital or diagnostic laboratory technicians. Instead we would expect that the BTech (Biomedical Science) degree would provide an initial pathway for graduates who would be able to undertake and manage independent research and development in biomedical science. It is anticipated that a broad range of career options would be open to graduates in hospitals, universities, Crown Research Institutes, pharmaceutical and biotechnology industries. The course will be academically demanding and entry will be competitive. The intake to the BTech (Biomedical Science) course will initially be limited to not more than 25 students per year. Because the degree may be awarded with honours, it will provide an appropriate avenue for students who wish to progress to a PhD in the School of Medicine.

The Pacific Way

The following extracts are taken from the President's Report to the 1992 Annual General Meeting of the Pacific Paramedical Training Centre.

ACTIVITIES OF THE CENTRE 1992

This year has seen further expansion of the Centres' activities. Two Training courses involving 12 trainees were held, the Quality Assurance Programme for the Hospital Laboratories of the Pacific Islands was further developed and the first three year technical training programme in the Laboratory at the National Hospital, Apia, Western Samoa will be completed in November this year.

It is also encouraging to observe that the activities undertaken by the Centre are reflected in the considerable improvement made by some of the Pacific Island Laboratories in the delivery of their services. World Health Organisation and Centre Staff who have worked and travelled in the region during the past few years all report on this significant improvement.

It is hoped that after the Quality Assurance Programme has been in operation for a further year, that a more quantifiable measure of laboratory improvement can be made.

It was pleasing that the trainees who attended the PPTC Microbiology Course held between July and September this year were able to attend the New Zealand Institute of Medical Laboratory Science Annual Scientific Meeting which was held in Wellington in August.

An event of special note during 1992 was a dinner given by the NZ Red Cross Society for the Blood Bank Technology Trainees. The dinner was held at the NZ Red Cross Society National Headquarters, Hill Street, Wellington and hosted by the National President of the Society, Mrs Joan Cockburn. This was a very happy occasion enjoyed by all. Thanks to Red Cross for this highlight event.

REGIONAL HEALTH LABORATORY QUALITY ASSESSMENT PROGRAMME

This activity remained an important part of the Centres' collaborative programme with the World Health Organisation during 1992.

Quality control samples were dispatched to some eighteen Pacific Island Hospital Laboratories on a monthly basis. Participation by the laboratories is generally good with the majority of the laboratories completing over 50% of the surveys. Feedback from participating laboratories is that they still wish to continue with the programme even if they do not return results for all samples.

The Clinical Biochemistry Quality Control Co-ordinator, Clare Murphy, attended the Fiji Medical Laboratory Technicians Conference in Suva in September of this year. This conference focused on Quality Control methods and Clare conducted a successful workshop in this area.

At a recent meeting in Tonga at which the Deputy Director Planning, International Development Centre of Japan was present, appreciation was expressed to the PPTC for its initiative in setting up the Quality Assurance Programme for Pacific Island Hospital Laboratories. The Japanese International Co-operation Agency (JICA) has been involved with the World Health Organisation on a Japan-WHO Technical Co-operation Project in the Kingdom of Tonga Health Laboratory; and the Quality Assurance Programme had made a very useful contribution during the course of this Laboratory development project.

VISITORS TO THE CENTRE 1992

On Friday 3 April, Mr Christopher Lovelace, Director General of Health, New Zealand Department of Health, visited the Centre and presented certificates to the Trainees who had completed the February-April Blood Bank Technology Course.

Dr C.C. Aikman, CBE, accompanied by Mrs Aikman, visited the Centre on Friday 4 September and presented certificates on the conclusion of the July-August course in Medical Microbiology.

Among other welcome visitors to the Centre during 1992 were Mr Derek Pamment, Visiting Laboratory Advisor from the UK to Fiji, and Dr Serevatu, Consultant Pathologist, Colonial War Memorial Hospital, Suva, Fiji.

EQUIPMENT

The teaching laboratory equipment remains in good condition and no major items of new equipment were purchased, or repairs to equipment required. At this time the only major item of equipment foreseen for purchase in 1993 is a computer printer.

The Centre records sincere thanks to the New Zealand Department of Health for the donation of computer equipment.

Thanks are also recorded to Mr Des Philip for the donation of an Olivetti typewriter and to the Wellington Area Health Board and Hawkes Bay Medical Laboratory for the donation of various items of surplus laboratory equipment.

ACKNOWLEDGEMENTS

As in previous years the management committee of the PPTC are indebted to a number of organisations and individuals for ongoing support and encouragement.

1992 has been no exception to this and once again the PPTC extends sincere thanks to the following organisations for their greatly valued assistance.

The New Zealand Ministry of External Relations and Trade
The New Zealand Department of Health
Wellington District of the Wellington Area Health Board
The New Zealand Red Cross Society
The New Zealand Institute Medical Laboratory Science
New Zealand Federation of University Women
The Norman Kirk Memorial Trust
South Wellington Rotary Club
CITEC Training Solutions Ltd
The Royal College of Chemical Pathologists Australasia, (QA Group)

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 1992.

PPTC MANAGEMENT COMMITTEE 1992/93

Co-Chairman, Dr R. McKenzie — Representing New Zealand Red Cross Society.
Co-Chairman, Assoc. Prof H.C. Ford — Representing Wellington Hospital.
Mrs F. Bloor — Representing Ministry of External Relations and Trade.
Ms M. Chamberlain — Representing New Zealand Department of Health.
Ms M. Eales — Representing New Zealand Institute of Medical Laboratory Science.
Mr J. Elliott — Representing Medical Laboratory Scientists' Wellington Hospital.

Haematology — Blood Bank Technology Course, February — March, 1993.
Back row: *(l to r) Henry Tand (PNG), Outali Kapa (PNG), Alan Resture (Tuvalu), Patrick Vahin (PNG), Pai Mamndi (PNG).*
Front row: *(l to r) Kiram Bigam (PNG), Mike Lynch (PPTC), Ron McKenzie (PPTC), Fe'ofa'aki Nonu (Tonga), Tirath Lakshman (Tutor).*

TRAINEES WHO COMPLETED COURSES AT THE PACIFIC PARAMEDICAL TRAINING CENTRE DURING 1992

BLOOD BANK TECHNOLOGY COURSE 10 FEBRUARY — 3 APRIL, 1992.
Barry Karben, Marshall Islands (WHO Fellowship)
Sammy Sonish, Chuuk — Federated States of Micronesia (WHO Fellowship)
James Chand, Fiji (Private)
Meleaone Tumii, Cook Islands (NZ Federation of University Women, South Wellington Lions Club)
Nicole Kauri, Papua New Guinea (NZ Red Cross Society)
Timothy Vatu, Vanuatu (NZ Red Cross Society)
Johnny Herbert, Pohnpei — Federated States of Micronesia (WHO Fellowship)
Kues Tarabi, Papua New Guinea (NZ Overseas Development Aid)
Ambala Nair, Fiji (NZ Red Cross Society)

MEDICAL MICROBIOLOGY COURSE 13 JULY — 4 SEPTEMBER, 1992.
Anthony Tandrapah, Papua New Guinea (NZ Overseas Development Aid)
Dubuna Danaya, Papua New Guinea (NZ Overseas Development Aid)
Nixon Jabnil, Marshall Islands (NZ Overseas Development Aid)

TRAINING COURSES 1993

Two Medical Laboratory Training Courses are scheduled to be held at the Pacific Paramedical Training Centre in Wellington during 1993. The first one on Basic Haematology — Blood Bank Technology was held during February and March 1993. Seven students attended this course, five from Papua New Guinea, one from Tonga and one from Tuvalu. A certificate presentation was held at the PPTC on Thursday, 1st April, 1993. His Excellency, Mr B.W. Rongap, High Commissioner of Papua New Guinea, presented the certificates.

A second course is to be run August — September 1993 on Quality Assurance. This course will be designed so that the attendees will learn the skills to develop an intra-country Quality Assurance Programme. All aspects of Quality Assurance and Internal and External Quality Control in the four major laboratory disciplines will be covered. Methods of interpreting results and instigating remedial action will be stressed. It is hoped that the countries that have more than one laboratory will send a technician to attend the course who will have the opportunity to become responsible for the Quality Assurance for their nation's laboratories.

WESTERN SAMOA TECHNICAL TRAINING PROGRAMME — First Course Completed

A graduation ceremony was held on Thursday, 12 November, 1992 for students who had completed the first Western Samoa Medical Laboratory Technical Training Programme. The course was of three years duration and led to the Qualified Medical Laboratory Technicians Certificate. The training programme was carried out at the Pathology Department, National Hospital, Western Samoa, which is under the auspices of the New Zealand Pacific Paramedical Training Centre and the WHO and covers the medical laboratory disciplines of Immunohaematology, Microbiology, Haematology and Biochemistry.

The graduation ceremony was a colourful event attended by the New Zealand High Commissioner, Health Department representatives and many relatives and friends of the trainees. Held at the Nurses Centre at National Hospital, Apia, the Address of Welcome was given by Dr V.F. Asana, Consultant Pathologist at National Hospital and the Graduation Address was given by the Hon. Sala Vaimili, II, Minister of Health, Western Samoa.

Dr David Parkinson, World Health Organisation Representative, Western Samoa, presented the certificates and prizes, and the Closing Address was given by Dr George Schuster, Director General of Health, Western Samoa.

A second three year training course began in February 1992 with an intake of eight trainees. The successful trainees in the first course were Matauaina, Pele, Moe and Puipuia.

Graduates from the Western Samoa Training Programme
Matauaina, Pele, Moe and Puipuia.

BAXTER DIAGNOSTICS INC.

1994 IAMLT AWARD FOR "OUTSTANDING SERVICES TO MEDICAL LABORATORY TECHNOLOGY"

ELIGIBILITY:

1. Membership of at least 5 years of one of the national associations.
2. Full-time occupation in a medical laboratory.
3. Proper professional qualifications.
4. Activity in own professional organization.

ELECTION:

1. Each national committee may designate one candidate for the prize. 5 copies of the proposal must be sent to

   IAMLT
   Executive Director
   Östermalmsgatan 19
   S-114 26 Stockholm
   Sweden

   accompanied by 5 copies of the following:

   a. Curriculum vitae of the candidate including publications if any (please mention any teaching activity and private hobbies)
   b. Certificate by the employer
   c. Name and address of two referees able to give information about the candidate.
   d. Detailed information from the national committee regarding the standard of work, personal qualities and special considerations for recommending the candidate for the prize.

   A member of a national committee assisting in the election of a candidate is not allowed to enter for the award, but may be replaced in the committee in order to participate in the contest.
2. Previous applications which fulfil the conditions may be reconsidered on the recommendation of the national society.

DEADLINE:

Names of candidates for the prize along with all supporting documents must be sent to the Executive Office by November 1 of the year preceeding the IAMLT Congress.

A copy of all information will be sent to the designated representative of Baxter Diagnostics Inc. by December 31 of the same year. The IAMLT Awards Committee and Baxter Diagnostics Inc. will jointly select the award recipient.

Applications and supporting documents will not be returned to the national association.

The prize is given by Baxter Diagnostics Inc. every two years on the occasion of the IAMLT Congress and consists of SFR 4,000. The Award will be presented at the IAMLT World Congress in Hong Kong, 25-29 July 1994, by a representative of Baxter Diagnostics Inc. in the presence of the IAMLT Awards Committee.

BOOK REVIEW
"IMMUNOLOGY"
SEVENTH EDITION, 1993

ISBN 0 443 04660 3
Donald M. Weir MD FRCPE
Professor of Microbial Immunology, Department of Medical Microbiology, University of Edinburgh Medical School, Edinburgh
John Stewart BSc (Hons) PhD
Lecturer in Immunology, Department of Medical Microbiology, University of Edinburgh Medical School, Edinburgh
Publishers:
CHURCHILL LIVINGSTONE
Edinburgh London Madrid Melbourne New York and Tokyo
1993
Reviewed by Gillian McLeay, Laboratory Training Officer Auckland Hospital

I came across one of the earliest editions when I first started studying immunology in the early 1970s. There was not the same assortment of text books available then; those on Laboratory shelves were generally big, musty tomes, heavy in weight and content and not particularly encouraging for someone, completely new to the subject, to pick up and read.

The first edition (published in 1970) was written with the student in mind. It was a small, relatively inexpensive paperback, which fitted into the pocket of your Lab coat and so was on hand if the opportunity arose for a quick read during an incubation time or a tea break. I have very happy memories of this little book. As this is the seventh edition, it has obviously been popular with many other people also.

In the preface, the authors state why they considered a new edition was necessary:

"The 'jet propelled' pace of immunology has not slackened since the appearance of the 6th edition in 1988. This has necessitated an almost complete rewrite of the *'Basic immunology'* section with extensive changes in the *'Immunology in action'* chapters."

This latest edition (still in paperback form) retains many of the features of the earlier editions. The language is simple and conversational in style.

The sections on the Complement system and the Major Histocompatibility Complex are not so easy to read, but then I challenge anyone to be able to describe these bastions of 'immunological knowledge' in a simplistic manner. This minor problem is compensated for by reinforcement and additional explanations in following chapters.

The book is divided into two sections — *'Basic immunology'* and *'Immunology in action'*. The latter is an innovative name to describe the application of basic immunological knowledge to Medical Laboratory Science.

In a student text it is not possible to cover the application of immunological knowledge to the whole body of current knowledge known at Clinical Immunology. Instead, the aim is to provide insights on how the study of Immunology can explain the origin and pathogenesis of certain disease states. In short, it provides an overview of Immunology as a science and its application in the field of laboratory diagnosis.

There are four chapters in Section 1, *'Basic Immunology': 'Immunity', 'Innate immunity', 'Antigens and antigen recognition'* and *'Acquired immunity'* respectively. In Section 2, *'Immunology in action'* there are six chapters: *'Infection, immunity and protection', 'Immunohaematology', 'The immunology of tissue transplantation' 'Malignant disease', 'Immunopathology', 'Interaction of antibody with antigen and applications in laboratory investigations'.*

The objectives at the beginning of each chapter in this section can be used as test questions to check the required level and depth of knowledge has been achieved.

Despite the authors' comment that the format "is designed to appeal to those who prefer descriptions in words rather than complex illustrations", there are many simple, clearly executed diagrams and excellent tables.

This book will be especially helpful to students studying Immunology, Microbiology, Transfusion Science and Virology, but also a great advantage to those in other disciplines where a knowledge of the immune system is still required to comprehend fully the consequences of disease and the response to it in animals and man.

I highly recommend this book, which at only $60 (and with student discount) is well within the reach of the average impoverished student. Copies may be obtained from Medical Books (NZ) Limited which has branches in both Auckland and Wellington.

1993 SOUTH ISLAND SEMINAR

The staff at Timaru Hospital organised this year's South Island Seminar at the Centrepoint Hotel in Methven on Saturday 28th March. This picturesque setting, nestled under the foothills of the Southern Alps, and the beautiful autumn weather combined with an interesting range of presentations made this a very successful event. Presentations included:

"The Case of the Large Breast Haematoma" by Katherine Denton in which an unusual bleeding disorder was diagnosed.

"Ovulation Profiles" by Jan Dean demonstrated how a single serum progesterone result may give misleading information in abnormal but fertile cycles.

"Slug Poisoning" by Trevor Walmsley presented cases of lead poisoning in recreational indoor small bore rifle shooters.

"Parasites Keep the Upper Hand" by Janet Wilson reviewed the major parasites still affecting mankind.

"The Great Detective Game" by Diane Phillips talked about the interpretation of liver function tests by mutual cooperation between Biochemistry, Immunology and Haematology departments.

"Novus Actus Interveneens" by Graeme Bennett described the death of a patient when transfused with a unit of blood infected with *Yersinia enterocolitica*.

"A New Aeroplane in Town" by Jim Le Grice reviewed a year's experience with the Hitachi 747.

"Will the Correct Cholesterol Result Please Stand Up" by Richard Fowler solved a problem with cholesterol calibration.

"Neuroblastoma" by Chris Sies used a case study to demonstrate that diagnosis of this paediatric disease requires testing for urine dopamine.

"Bloody Hell! Analysis of a Blood Transfusion Crisis" by Gerard Verkaaik spoke on how a medium sized hospital coped with the transfusion of 74 units of blood and blood products during an operation.

"Simon Sez! Said!" A video by the Timaru Laboratory staff took a light hearted look at the health 'reforms'.

An NZIMLS and an NZMLTB update by Kevin McLoughlin and Jim Le Grice.

The winner of the Med Bio Enterprises prize for the best paper was Chris Sies for his presentation on Neuroblastoma. The 1993 Conference Committee also awarded Chris free registration for this year's conference in Christchurch.

The seminar was attended by 50 people from all areas of the South Island. A scientifically and socially enjoyable meeting.

NEW PRODUCTS AND SERVICES

COULTER AND INSTRUMENTATION LABORATORY FORM GLOBAL ALLIANCE

Recently, Coulter Electronics of Miami, Florida and Instrumentation Laboratory (IL) of Milan, Italy, announced the formation of a worldwide, long term strategic alliance. This alliance allows both companies to take advantage of their market strength and to improve the efficiency of their established operations.

In New Zealand, Coulter will handle the support and distribution of IL's product lines. "This alliance allows both companies to maximise their distribution and service strength, while eliminating duplications in our infrastructures," said Wallace Coulter, Chairman of the Coulter Corporation.

Both Coulter and IL are world market leaders in their fields. The complimentary nature of the product lines provide a natural synergy that will benefit both companies and their customers.

In addition, Coulter and IL share a history of innovative technology and quality products. Both are pioneers in introducing a systems approach to their product lines and both have a corporate tradition emphasising complete customer support and satisfaction.

In New Zealand, Coulter enters this exciting new era well prepared. The national service and support operations have been trained in all products. In addition, Karl Mikschofsky, a long time IL employee has joined Coulter Electronics as the IL Business Manager. Karl has 11 years experience with IL, working in the areas of technical service, customer support, sales and marketing. Prior to moving to Australasia, he held the position of Marketing Manager with IL GmbH in Munich, Germany.

Coulter commence support of the IL products on 1 April, 1993. For further information contact Sales 09 828 6621 and Service 0800 446 109.

THE WHATMAN CLINIPREP™ SPECIMEN PREPARATION DEVICE

The Whatman CliniPrep Specimen Preparation Device comprising a test tube and filter plunger is a complete specimen preparation system and provides one step filtration even with viscous samples. The unique design incorporating integral filter and membrane, stacks into the tip of the plunger so that no assembly is required.

Pressing the filter-plunger through the specimen in the test tube forces the filtrate into the reservoir of the filter-plunger. The filtration process removes interfering particles to boost sensitivity and reduces false positives and false negatives in diagnostic assays, thus ensuring accurate results are achieved the first time.

CliniPrep is completely self-contained to reduce exposure to potential pathogens during laboratory handling. CliniPrep devices can be automated using the Whatman Processor so that up to 24 specimens can be clarified at one time. The vial and plunger are made of medical grade polypropylene. The hold-up volume of 100 ul can accommodate a maximum specimen volume of up to 5 ml depending on sample type.

The filter-stack combination may be used to clarify faecal, urine and STD specimens for ELISA assays for diagnostic kits in research or clinical testing laboratories.

For more information please contact:- Labsupply Pierce (NZ) Limited, PO Box 34-234, Birkenhead, Auckland 10. Tel 0-9-4435867. Fax 0-9-4447314.

ANOTOP & ANOTOP PLUS SYRINGE FILTERS FOR ANALYTICAL, BIOCHEMICAL AND BIOLOGICAL APPLICATIONS

The Whatman Anotop & Anotop Plus syrgine filters have superior particle removal efficiency because of the narrow pore size distribution of the inorganic membranes inside. The high porosity of the membranes also gives these filters very high flow rate capability. The inorganic nature of the membrane makes it compatible with a wide range of solvents and aqueous solutions. No monomers, plasticisers, adhesives, surfactants or wetting agents are used in manufacture, so the level of extractables is well below detectable limits, avoiding sample contamination. The capillary pore structure of the membrane enables microorganisms and particulate material to be trapped on the surface of the membrane, and not within its structure.

Anotop is suitable for analytical sample preparation, cold sterilisation of growth media, filtration of solvents for spectrophotometric analysis, phage and virus filtration, liposome extrusion and removal of high molecular weight proteins or polymers.

Anotop Plus with its built-in glass microfibre prefilter is suitable for filtration of tissue culture media, clean-up of difficult samples for analysis, filtration of colloidal material and removal of mycoplasma.

The filters have a polypropylene housing and are available in two sizes. Anotop 10 and Anotop Plus 10 are for sample volumes up to 10 ml while Anotop 25 and Anotop Plus 25 are for sample volumes up to 100 ml. Pore sizes available are 0.02, 0.1 and 0.2 um.

For more information please contact:- Labsupply Pierce (NZ) Limited, PO Box 34-234, Birkenhead, Auckland 10. Tel 0-9-4435867. Fax 0-9-4447314.

THE PROPPER STERILISATION SECURITY SYSTEM FOR SECURITY INSIDE AND OUT!!

For nearly sixty years Propper products have been serving the medical and laboratory profession with innovative, practical products.

The comprehensive selection of Propper sterilisation system products includes sterilisation indicators, sterilisation test sheets and test packs, packaging, tape and bags for autoclave and gas sterilisation as well as biohazard and decontamination bags and sterilisation record-keeping systems.

The Chex-All™ pouches and tubes incorporate a patented design with independent indicators on both the inside and outside. This unique feature monitors the effective penetration of steam or ethylene oxide gas on the inside of the pouch or tube and eliminates the need for indicator strips. The Chex-All II™ pouches have the added feature of self-adhesive hermetic seals for convenience of use.

For more information please contact:- Labsupply Pierce (NZ) Limited, PO Box 34-234, Birkenhead, Auckland 10. Tel 0-9-4435867. Fax 0-9-4447314.

INCREASE YOUR LABORATORY'S PRODUCTIVITY WITH THE JUNG AUTOSTAINER XL

After years of research and engineering studies, Jung found that laboratories were looking for improvements in automatic slide stainers in three primary areas of operation: higher throughput, more staining flexibility and better safety features. Setting these features as goals in the design and development of a new instrument, the AUTOSTAINER XL was the result.

The AUTOSTAINER XL has an innovative continuous loading and unloading system that allows you to process slides without stopping the instrument, and this coupled with a capacity to stain up to 200 slides per hour or 1000 slides per day gives you maximum laboratory productivity.

An integrated fan-forced oven gives quick slide drying times and the ability to choose station times, station sequence and to run simultaneous protocols gives you maximum staining flexibility.

The unique external loading and unloading drawers, a fume containment hood, and internal extraction fan with a

charcoal filter to remove hazardous vapours are standard features of the AUTOSTAINER XL designed with your safety in mind.

For more information please contact:- Labsupply Pierce (NZ) Limited, PO Box 34-234, Birkenhead, Auckland 10. Tel 0-9-4435867. Fax 0-9-4447314.

COMPANY NEWS FROM LABSUPPLY PIERCE (NZ) LIMITED

Susan Whineray has recently joined Labsupply Pierce (NZ) Limited as sales representative and histology product specialist for medical laboratory customers in the Auckland, Bay of Plenty and Taranaki areas. Susan has just returned from three years overseas where she worked in a serology laboratory in Harley Street, London. Previously Susan worked in serology at Diagnostic Laboratory in Auckland and later studied for NZCS while working at Greenlane Hospital.

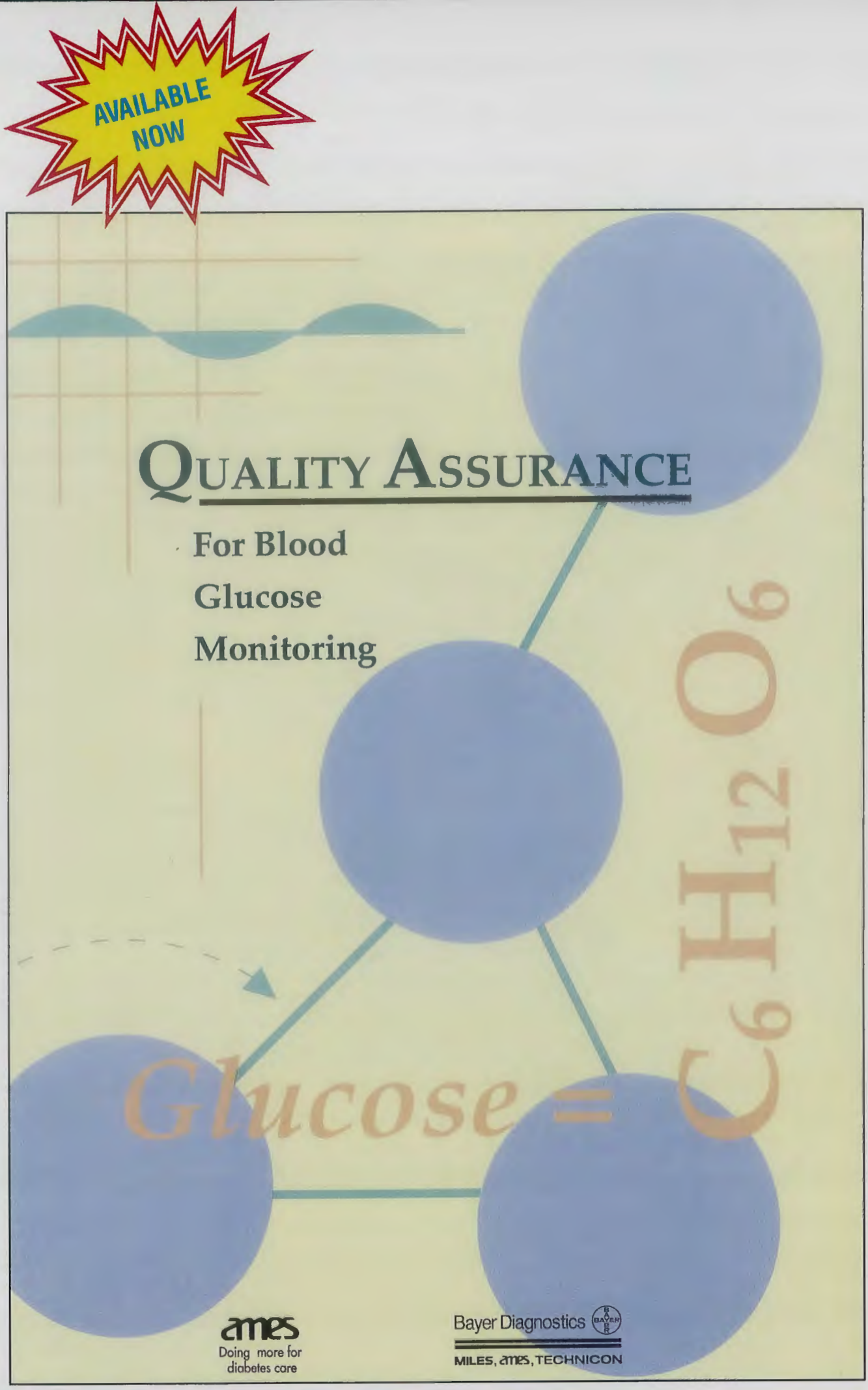
Roger Hoy from the Wellington office has recently returned from Japan where he attended a factory training course on the service and maintenance of laboratory freezers at the Sanyo factory. Labsupply Pierce (NZ) Limited now has the unique resource of a trained refrigeration engineer on staff to support the quality Sanyo range of laboratory freezers.

Elaine Fong has recently joined the Christchurch offices in a customers services role. Elaine is looking forward to serving the South Island customers.

Miditron®

mannheim boehringer

Miditron®
— The future of Automated Urinalysis



FREE PHONE 0800-502233