Volume 51 Number 2 May 1997

ISSN 1171-0195

New Zealand Journal of

Medical Laboratory Science

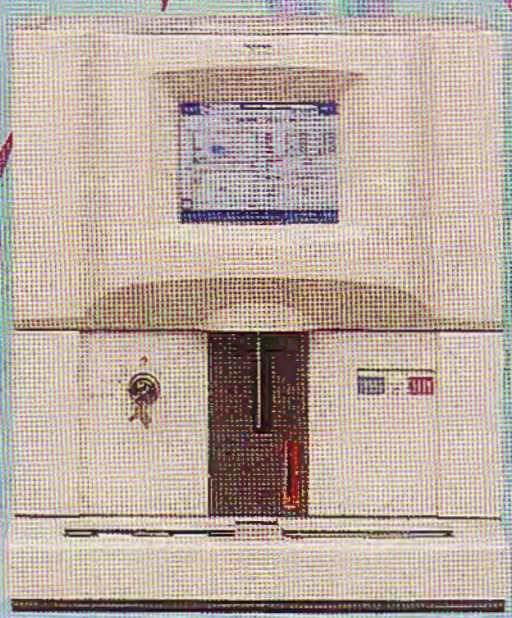
Official Publication of the New Zealand Institute of Medical Laboratory Science Incorporated

Sysmex™

FULLY AUTOMATED URINE CELL ANALYZE

UF-100

URINALYSIS WORKFLOW DRAMATICALLY CHANGES



TOA MEDICAL ELECTRONICS CO., LTD.

SCIANZ

Toll Free 0800 SCIANZ (0800 724 269)

New Zealand Journal of
Medical Laboratory Science
Volume 51 Number 2
May 1997
ISSN 1171-0195

Leading Article

How to Get Your Article Published in the Journal

Rob Siebers, FNZIMLS
Department of Medicine
Wellington School of Medicine

Too often medical laboratory scientists do not publish their paper which they have presented at conference or at SIG meetings because they perceive that final step to be too hard. This is despite the fact that often many months of hard work has gone into the preparation of their paper, both at the bench and in analysing and writing a draft for oral presentation. On the day of their talk they may reach a target audience of 50 to 100 of their peers, but a much larger number of potentially interested colleagues who were unable to attend, are not reached. This of course can be rectified by publishing the presentation in the Journal.

Writing up a paper for the Journal is hard work. It is not something that can be done in a few spare hours. After many hours of writing (and re-writing) the author may have a draft which will need further polishing before it is potentially acceptable for the Journal. Even after submitting their article the author has to contend with the editor's and referees' comments and queries, often necessitating a final re-write of the article.

Medical laboratory scientists owe it to both themselves and their collaborators, and to their colleagues nationwide to publish their results. In the following essay I will give a brief overview on the main structure of a paper, and how to go about writing it up for the Journal.

Before even attempting to start writing your paper, first ask yourself - is it worth publishing? Is it a new finding, something unusual and seldom seen, or has this topic been done to death in scientific journals lately? Talk to your colleagues to get their independent opinion on the merit of your work appearing in print.

Now that you have decided that your work is potentially worth writing up for the Journal, the most important first step is to **read the instructions to authors**. Too often a major rewrite of the article is required because the author did not follow this basic step. Instructions to authors appear in each issue of the journal. Look through recent issues of the Journal, this will give a good indication of the type of articles published and how they were constructed.

One of the most important factors to consider when writing your article, and one that should be decided at the start is, who are the authors? Our journal follows the "Vancouver Style" of publications submitted to biomedical journals[1]. A previous editorial in the Journal has dealt with this sometimes controversial issue in more detail[2], but it is worth re-emphasising of what constitutes authorship of an article in the Journal. Basically each author must have participated in at least one of the following steps:

1. Conception or design of the study.
2. Analysis and interpretation of the data.
3. Drafting the main part of the article or revision thereof for critical important content.

All authors must also approve the final version of the submitted article (in a signed accompanying letter), and must take public responsibility for the content. Data collection, performing the assays, or simply advising on some aspects of the study does not justify authorship, and such contributions are normally acknowledged at the end of the article.

A scientific article is normally constructed from the following components and each will be discussed briefly below. 1. Title 2. Introduction 3. Abstract 4. Keywords 5. Introduction 6. Materials and Methods 7. Results 8. Discussion 9. References 10. Acknowledgments.

Title

The purpose of the title is to focus on, and to summarise your main message. It makes potential readers interested in your article and therefore has to catch their eye. Avoid vague statements such as "Study of..." or "Observations on...", and avoid abbreviations in the title unless spelt out in full in the first instance. A good title will be short, punchy and factual. Humorous titles are not contra-indicated providing the above is adhered to.

Abstract

Often potential readers look at the title and the abstract first, to see if the full article is worthy of their further attention. Therefore an abstract should convey in brief form the main message of the paper. It is actually a mini-paper in itself! Abstracts normally are 200-300 words long and should focus on the following four points.

1. Aims – the purpose of the study.
2. Methods – what you did and how you did it.
3. Results – main finding(s).
4. Conclusion – main interpretation of your study.

Authors may wish to read a more in-depth review on this topic recently published in the journal which covers do's and do not's of abstract writing[3].

Keywords

List up to six keywords relevant to the article. They should be from Index Medicus listed and approved words. Keywords are used by abstracting services for computer literature searches. They also alert the potential reader of the article what the likely main topics of the paper are.

Introduction

In this section the relevant background to the study should be

provided. It should introduce the reader to what the paper is about and why you have done the study. State if and how a hypothesis is to be tested, and define the problem to be solved. Identify the subject and accompanied with a concise review of the relevant literature. Thus the introduction should pose the question and the answer the author is going to give.

Materials and Methods

Describe briefly, but in sufficient detail the subjects, methods, equipment and reagents (include manufacturers' names) used to carry out the study. Methods must have sufficient detail to allow others to exactly replicate your study. If a method you used has previously been published, only reference it but do describe any modifications made to it. State if ethical approval has been obtained, and briefly state the statistical techniques used to analyse the results.

Results

This is the **main** part of the article. Present the experimental data in a logical sequence. Include tables, histograms, figures, photographs and statistical analysis where they are essential for proper understanding of the data. Do not forget to include negative data if they are essential to the main aims or hypothesis of the study, even if they contradict your hypothesis. Data is best presented in tabular form, but do not duplicate results in the text if they have been presented in tables or graphs.

Discussion

In this section first state what is the most important finding of your study. Interpret your data in relation to the problem or hypothesis of the study. You must argue both for and against your results and/or your interpretation of them. Limitations of the study should also be stated. Relate your observations to those of similar published studies. Discuss what the impact of your findings are on possible follow up studies. Remember to keep the discussion brief but concise. For readability put only one discussion point or argument per paragraph.

References

This section is normally the editor's nightmare. There is a certain style for references in scientific journals which is rarely followed. Read the instructions for authors and look at previous articles published in the Journal. A very good pictorial guide has previously been published in the Journal[4]. Include only key references. For instance there may have been about 50 published articles regarding the topic of your study in the scientific literature, but only 3 to 5 key references on them is allowable. Do not lift the references from other articles, but check (and double-check) them against the original article (which you must have read comprehensively in the first instance anyway). Use the correct journal abbreviations as listed in Index Medicus. Personal observations and unpublished or submitted studies are not cited in the reference section, they should be quoted in the text where appropriate.

Acknowledgments

In this section acknowledge persons who have contributed in some way to the study but who do not qualify for authorship. Obtain permission from them to do so. If you have received material and/or financial contributions towards the study from companies or granting bodies, they should be acknowledged here. Written permission must be obtained from individuals who may be recognised in photos. Similarly if you wish to reproduce material (especially graphs, tables and photographs) from other publications, written permission from the publisher as copyright holder must be obtained and accompany the submitted article.

You have finally finished writing your article for the umpteenth time and consider it ready to be sent to the Journal. It may be worth waiting prior to immediately posting it to the Journal. First put the manuscript aside for a week and then critically re-read it. Quite often you will find some part of it which you want to re-write. Additionally give a copy to one or two of your colleagues and ask them for their comments, they may be able to make some valuable suggestions.

Finally you have sent it to the Journal. You naturally think your article is well-written, scientifically sound, a unique piece of research and that the Journal is eager and willing to accept your masterpiece without question. Of course the editor is pleased to receive your contribution, lately not too many articles have been submitted to the Journal despite knowledge that many good studies have been presented at conference or SIG meetings that are worthy of publication. But the fact is that the Journal is a peer-reviewed publication. In order to ensure the continuance of quality and scientifically sound articles, your submitted manuscript will be reviewed by the editor and be sent to at least two referees who are experts in the scientific area of the submitted article. So what is involved in the editorial review of your article?

The referees are asked to review your article according to the following criteria. Is the article scientifically sound? Is it original? Are the conclusions of the author(s) justified? Is the article clearly and concisely written? Are there errors in fact, logic or technique? Has ethical approval if required been obtained? Does the article have a clear title and abstract? Are the tables and figures essential? Are the references appropriate? Have key references been omitted? Finally, in the referee's opinion is the article acceptable as, are minor changes required, needs major revision, or is unsuitable for the Journal because it is scientifically unsound or inappropriate.

It is hoped that this article is of use to both members and non-members of the NZIMLS (acceptance of an article by the Journal is **not** dependent on membership) who are contemplating writing up their study for the Journal. You owe it to yourself (think of the MOLS points), your collaborators, your institution and to your colleagues to more widely disseminate your findings.

References

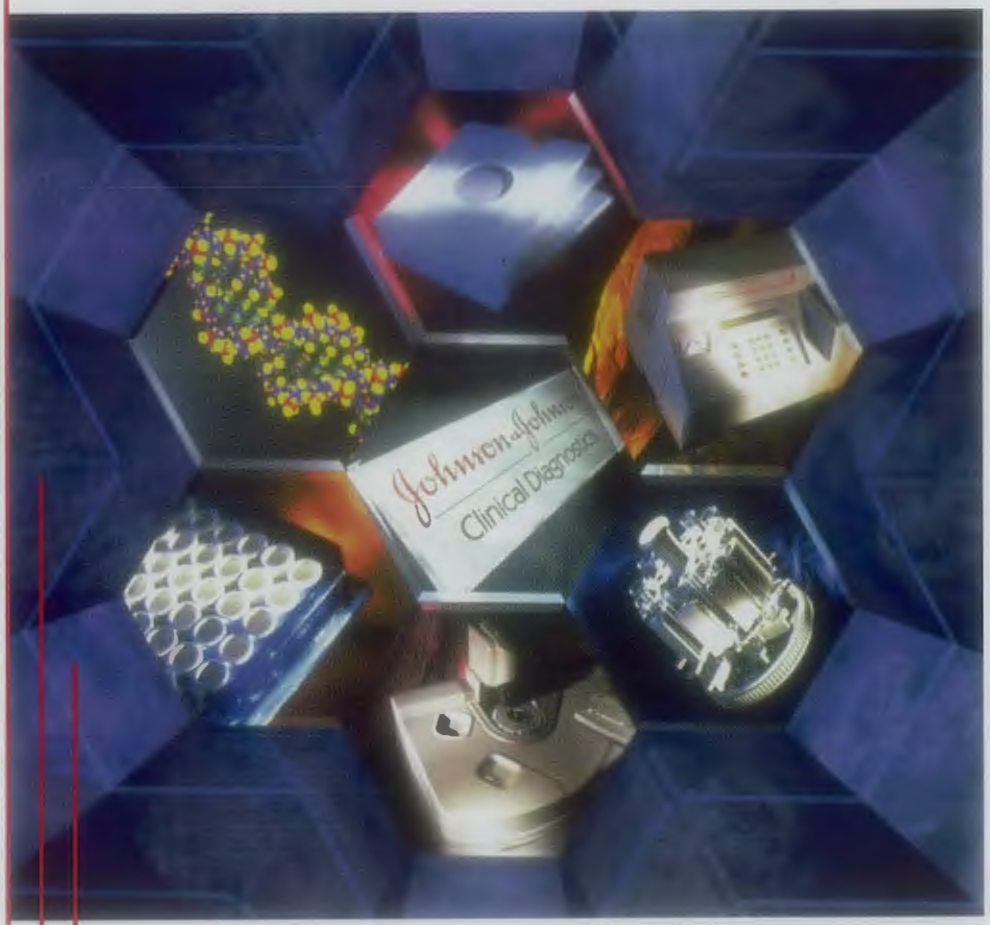
1. International Committee of Medical Journal Editors. Uniform requirements for manuscripts submitted to biomedical journals. *J A M A* 1993; 269: 2282-6.

2. Siebers R. Author or co-author? Guidelines and recommendations (Editorial). *NZ J Med Lab Science* 1995; 49: 115.

3. Siebers R, Elliot J. Abstract writing for scientific meetings. *NZ J Med Lab Science* 1993; 47: 6.

4. Information for contributors. *NZ J Med Lab Science* 1991; 45: 108-11.

Integrated Diagnostic Solutions for your Laboratory.



VITROS Systems is the new brand name for the Johnson & Johnson Clinical Diagnostics integrated family of products that will help your laboratory not only compete but succeed in today's changing healthcare environment.

VITROS Systems can standardise operations across multi-site and multi-size laboratories. It encompasses the leading-edge technology and sophisticated automation of our proven chemistry systems, new immunodiagnostic system, and emerging nucleic acid technology. Together they deliver on a common goal of improving your laboratory productivity while lowering costs.

A benefit that can ensure your laboratory's success.

For more information, contact your J&JCD representative or call 1800-808-546 in Australia or 0800-800-705 in New Zealand.

VITROS Systems

Johnson & Johnson
Clinical Diagnostics

A Computer -based System to Generate Clinical Chemistry Reference Intervals from Hospital-based Patients: A Pilot Study

Josephine Ellis, MNZIMLS, BAppSc, Senior Lecturer
School of Communications Studies,
Auckland Institute of Technology, Private Bag 92006, Auckland

Abstract

A pilot study was conducted using the Microsoft Access database program to determine whether it was possible to use a readily available commercial software package to generate reference intervals from the databases available at Auckland Healthcare. This involved combining the information held on the laboratory's database with the ICD-coded diagnoses on the discharge database and using a list of excluding diagnoses for a particular analyte to screen the raw laboratory results. As a result of this screening a "cleaned" population of reference individuals was generated who were considered suitable as a reference sample group from which could be determined a reference interval for that analyte for on-admission hospital patients.

The two analytes which were trialled were serum calcium and serum phosphate and the reference intervals which were obtained were comparable with those currently in use at Auckland Healthcare. It is suggested that this pilot study has shown that it is possible to use the Access program for this task, that the reference intervals generated in this way have possible practical applications and can be argued to have scientific validity. More work needs to be done on a further series of analytes however, before these reference intervals will gain clinical acceptance. An important advantage of this procedure is the minimal cost in comparison to full-scale reference interval studies, and the infinitely repeatable nature of the operation. There is also interesting potential for generating ethnicity-based reference intervals.

Keywords

Reference Value, Information Systems, Diagnosis, Calcium, Phosphate

Introduction

The current term of "reference interval" started its history as a "normal value" in earlier years, such as the 1920s, when doctors were taught that there was one normal value for each variable, e.g., the normal red blood cell count is 5 000 000 per mm^3 for men and 4.500 000 for women[1]. This has progressed to "normal range"[2] in the 1970s, then to "reference range"[3], then finally to "reference interval [4,5]

The major groups who have worked on setting guidelines for reference intervals for Clinical Chemistry tests have been:

- the Scandinavian Society for Clinical Chemistry and Clinical Physiology
- the international Federation of Clinical Chemistry [IFCC]
- the (American) National Committee for Clinical Laboratory Standards [NCCLS]

The Scandinavian report was presented in 1975 [6], and some sections have been updated recently [7]. The IFCC recommendations which came out in six parts from 1986 to 1991 refer in many places to the Scandinavian publication. The NCCLS proposed guidelines of March 1992[5] in turn make many references to the IFCC work. When comparing the two later documents there is very little in the way of major disagreements or contradictions, mainly differences in detail or emphasis.

When discussing the concept of reference values, the IFCC Expert Panel[4] comment that "health" is a subjective term and suggest that all reference intervals have their own definition of the appropriate state of health; the purpose and intended use of all reference values and intervals should also be clearly defined. The selection of individuals for the production of reference values was discussed by both the IFCC and the NCCLS, and while the IFCC suggested the possibility of constructing reference intervals from a population of special individuals in a "reference state" of health, for example, aged 20-30 years, of ideal body mass, fasting for 10 hours, taking no medication, consuming less than 45g alcohol per day, smoking less than 12 cigarettes per day, and with no apparent illness[8], the NCCLS rejected this concept

The possibility of using the large numbers of results stored in laboratory databases to generate reference intervals has for a long time been a very tempting possibility. A number of statistical manipulations have been suggested over the years, with the most commonly suggested techniques being those of Bhattacharya[13] Gindler [14], and Baadenhuijsen [15]. These all use some variations of a mathematical process of trying to separate out sub-populations with a Gaussian distribution from the central, "normal" Gaussian population. These procedures have not received the seal of approval [16], either officially or unofficially from the international bodies such as the IFCC, or the NCCLS.

An interesting development was published in Clinical Chemistry in December 1994[17], describing a study conducted in Finland at Turku University Hospital, a central hospital of 1200 beds comprising all main clinical specialities. In this study, which was looking at haemoglobin, mean corpuscular volume [MCV], and erythrocyte count, the "on-admission" results from the laboratory database and the ICD diagnoses from the diagnostic database were fed into a combined database. Diagnoses had been classified by a haematologist as "approved" or "to be excluded". The patients who did not have any of the "to be excluded" diagnoses became the reference sample group, from whom the reference intervals were calculated. Interestingly, in the same issue of Clinical Chemistry, the editorial was by Helge Erik Solberg[18], who had previously stated that *unscreened* laboratory databases should not be used to generate reference intervals[16]. The whole editorial is a useful discussion of the subject in general, and Koun"s approach in particular, but the key statement is:

"-Is the conclusion then that hospital data are unsuitable for

the production of reliable and useful reference values? By no means! The requirement is that laboratory data be combined with information stored in clinical databases. Then one may select groups of individuals that fulfil stated clinical criteria and use their values for the establishment of reference data. Such a procedure is in complete agreement with IFCC recommendations.

With this in mind, it was decided by the Auckland Regional Quality Assurance Group to run a pilot study on two clinical biochemistry tests [serum calcium and phosphate].

Materials and Methods

Ethical Approval

Ethical approval for access to patient data was obtained from the North Health Ethics Committee; no patient names were on the files used, with Patient Identification Number being the only means of identification.

Modification of Finnish computer system

The method used was modified slightly because of the slightly different Auckland conditions. No combined database exists, so records obtained on floppy disk from the laboratory database and the Special Projects diagnosis databases were processed using the Access database program on a PC. A Cyclone Pentium computer was used, which was set up with the Windows 3.1 environment, attached to the AIT computer network, and had 8Mbytes of RAM. The computer program used was Microsoft Access version 2.0. Statistical analyses were carried out using Minitab Release10.1 for Windows. Using a PC was also considered to have wider future applications since any programme developed could easily be run on the fairly ubiquitous Microsoft Office Professional package.

Figure 1 shows the original Finnish procedure as described by Kouri, and Figure 2 shows the modified procedure used in the Auckland study.

Figure 1
Original Finnish study

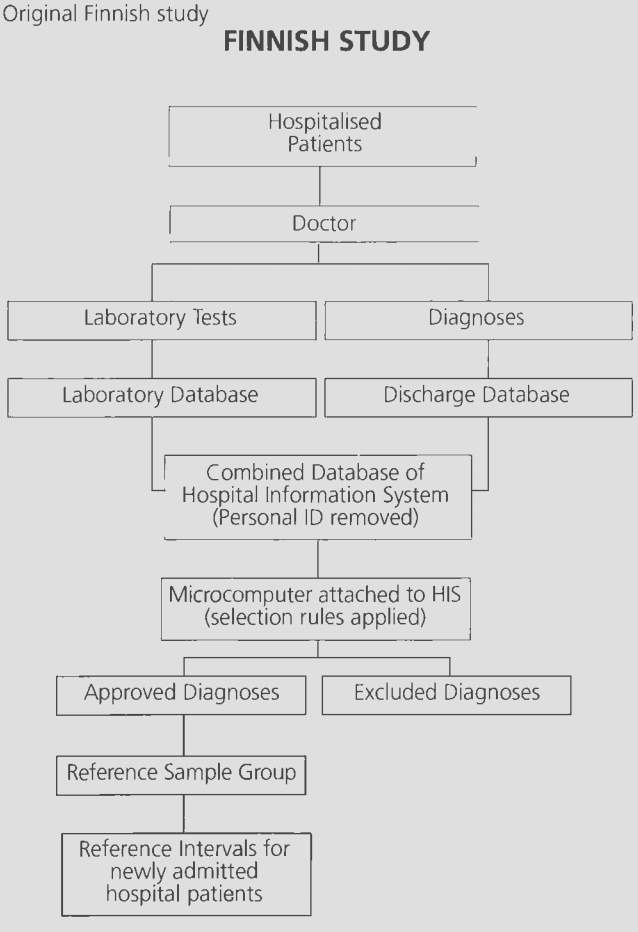
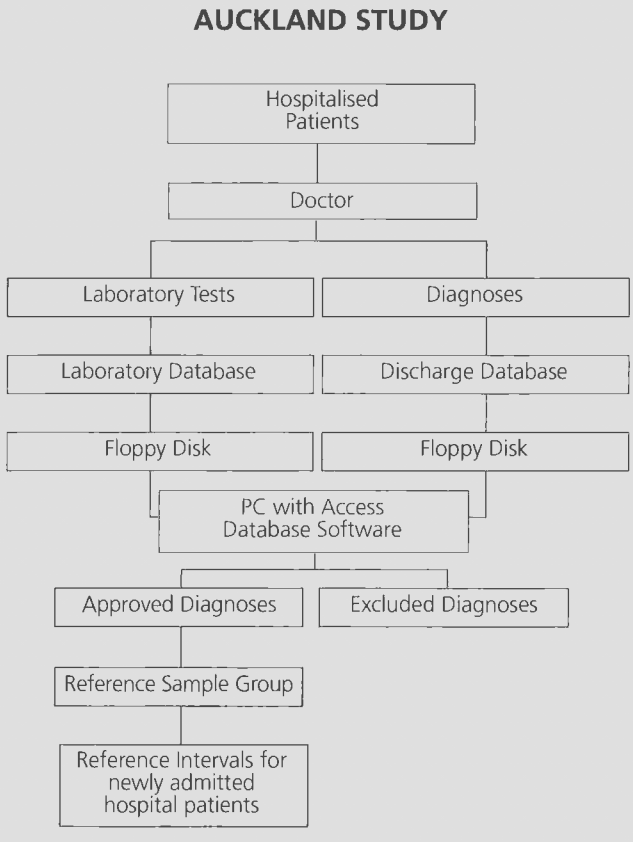


Figure 2
Modified procedure for Auckland study



Laboratory Methodologies

The serum calcium and phosphate analyses had been carried out on the Hitachi 747 using Boehringer reagents with results being stored in the Delphic computer system.

Preparation of Excluding Diagnoses

The excluding criteria for diagnoses were based on those listed in the American Association of Clinical Chemists [AACC] publication "Effects of Disease on Clinical Laboratory Tests" [9]. This gives a comprehensive listing of those conditions likely to give decreased or increased results for an extensive list of laboratory tests. The AACC list was compared with the Australasian coding system [20] currently used at Auckland Hospital to check that the coding was being applied in the same way. It was found that the following adaptations were necessary:

- To simplify the exclusion process, and give the broadest possible catchment of possibly unwanted patients, it was decided to use only the three digits before the decimal point in the ICD code.
- Additions were made to the list of similar diagnoses which might be coded under a different number, according to the coding protocol.
- Additions were made of diagnoses around the same number which seemed likely to have a similar clinical effect on the laboratory result. [These two steps were done with the assistance and guidance of Dr Tony Barker, Clinical Biochemist at Auckland Hospital].
- V codes are also used in the Auckland system; these are not a disease diagnosis as such, but a description of other

conditions, such as pregnancy or social situations which exist at the time of the particular admission. A few relevant V codes were also added to the list.

Table 1 shows examples of calcium or phosphate diagnoses converted to 3 digits, with extra related diagnoses added. The finalised list of excluding diagnoses for calclums contained 104 codes, and that for phosphates contained 223 codes; the phosphate exclusion diagnosis list was expanded between the analysis of the 1995 and 1996 data to increase the catchment of exclusion with a resulting improvement of the reference intervals.

Patient Diagnoses Files and Laboratory Result Files

The Special Projects team at Auckland Hospital initially provided the diagnoses for January to April of 1995; there were up to 4 diagnoses for each patient. A second series was run in 1996, with the diagnoses being increased to up to six. These diagnoses were obtained in Excel format on floppy disk [Zipped up], and then imported into Access.

The laboratory results for February and March of these two years were also obtained on floppy disk. There may need to be some preliminary steps to import the files into Access. Ideally the files should be in Excel, which can then be readily imported into Access, however ASCII files are quite satisfactory, although it seems best to import them into Excel first, then into Access to maintain their structure. Once in Access, the files are checked to see that the patient identification code is in the same format, with the same column heading as this will be the link between the two files.

Selecting the "cleaned" population

The system which was developed on Access to carry out this process follows a number of rather cleverly contrived steps:

Step One: Convert the diagnoses to three characters.

This converts the patient diagnoses to the same 3 digit format as the excluding diagnoses.

Step Two: "Cleaning the Diagnoses"

This involves the following stages:

Stage 1: "Omit" tables of the excluding diagnoses, one for each of the six columns of ICD diagnoses, from ICDA to ICDF are constructed.

These tables are specially constructed to check each patient file for the presence of any of the excluding diagnoses; if a match is found, the number "1" will be entered for that record. This will provide the basis for that patient to be excluded at the next stage.

Stage 2: Add the list of excluding diagnoses to these tables.

Stage 3: These files are then matched up in a Query constructed in the following way:

The joining lines are clicked on, and the option selected which commands:

"Include all records from the Diagnoses 3Char.. and only those records from OmitICDA when the joined fields are equal. This means that in any cases where a match is found between a diagnosis in any of the six columns and one of the excluding diagnoses, the code of "1" is given; these patients cannot then fulfil the "Is Null" criterion, so cannot be included in the reference sample group. This process is the key to screening the hospital database to produce a population of patients who do not have any of the excluding diagnoses.

The next step will be to determine if any of these patients have had calciums or phosphates performed.

Table 1

Examples of calcium or phosphate diagnoses coverted to 3 digits, with extra related diagnoses added.

AACC ORIGINAL	ADDITIONS OR MODIFICATIONS
150.90 Malignant neoplasm of esophagus	150 Malignant neoplasm (MN) of oesophagus 151 MN of stomach 152 MN of small intestine 153 MN of colon 154 MN of rectum
581 90 Nephrotic syndrome	581 Nephrotic syndrome 582 Chronic glomerulonephritis 583 Nephritis and nephropathy not specified as acute or chronic 590 Infections of the kidney
650 00 Pregnancy	650 Delivery in a completely normal case 651 Multiple pregnancy 652 Malposition and malpresentation of a fetus
829.00 Fracture of the bone	800 Bone fractures to 829 " "

Step 3: Removing multiple tests and selecting only the first test from each patient

Each patient's date of birth is recorded to 3 decimal places, so by sorting these in ascending order, and taking the first one, the earliest test is obtained. The "count" column records show many tests were carried out on each patient, even though only the first one will be used. This count will be used later as a refinement of the selection process, whereby only those patients with less than 3 tests will be accepted into the reference sample population.

The table created from this operation is copied again into a second table with a primary key beside the patient identification code to overcome any problems of duplicate tests on the first day.

Step 4: Matching the cleaned diagnoses with the patient's first test

The two files are linked by the patient ID code, and any matched records are transferred to a table from which the reference interval can be calculated.

Step 5: Calculation of the Reference Interval

This is done by the non-parametric ranking method as recommended by both the IFCC [11] and the NCCLS [5], with confidence intervals calculated for the limits at each end using the tables provided by the IFCC [11].

Results

The 1995 data was used to develop and refine the computer program and to determine whether any practical results could be obtained. Some promising reference intervals were obtained at that stage, which improved when the revised techniques were applied to the 1996 data. The results displayed here relate to the laboratory data from February and March 1996, and the diagnosis data from January to April 1996.

The results are summarised in Table 2. All of the calcium and phosphate values are in mmol/L. Note that for calciums the cleaned populations were also partitioned into males and females, and an over-65 years group, but these partitions did not give significantly different results. Because of the lower numbers, the phosphates were not partitioned. Reference intervals were not generated for the raw data as this was not thought to be appropriate. The Ryan-Joiner plots for these populations are a test of the normality of the distribution. A normal distribution would be shown by a line which followed the 45° angle, with a p value of greater than 0.05.

Figure 3 shows the distribution of the total 7911 calciums performed at Auckland Healthcare during the two months of February and March, and Figure 4 is the Ryan-Joiner plot of this distribution.

Figure 3
Total calcium population

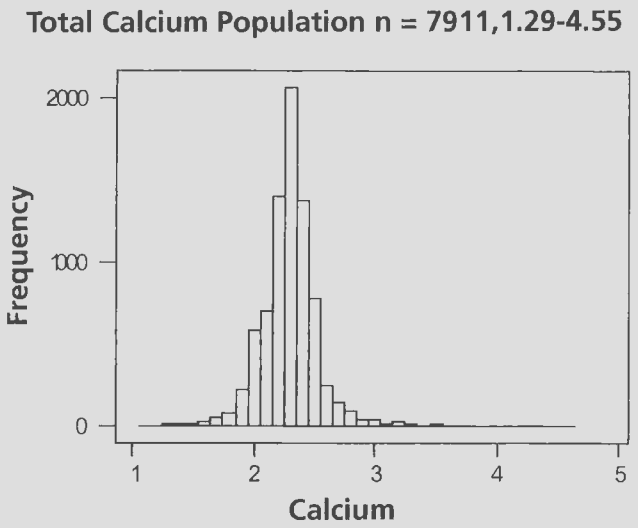
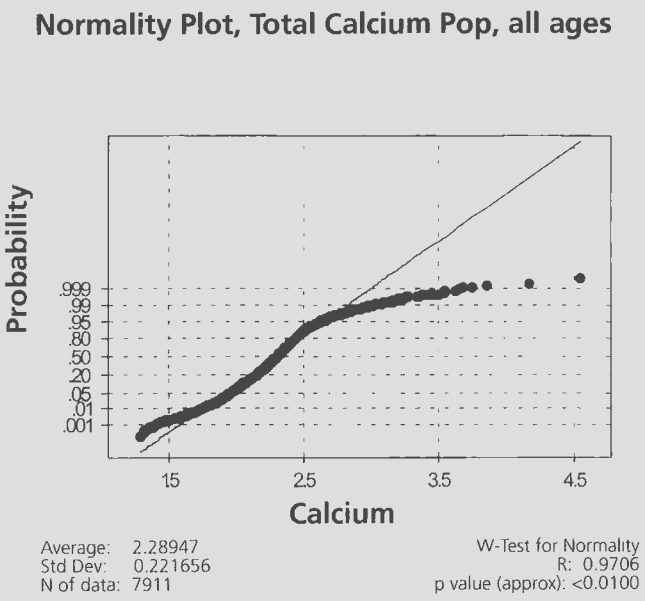


Figure 4
Ryan-Joiner normality plot of the total calcium population



Discussion

The objective of the first stage of the study was to see whether Access on a PC could be used to carry out similar processes to those done by the mainframe computer in the Finnish study. Access is widely available as part of the Office Professional package, which is currently the industry standard in Auckland. It was found that Access could in fact cope adequately with the task, and as a result a user-guide has been developed, with step-by-step instructions and screen prints.

Table 2
Reference intervals generated from data from Auckland Healthcare laboratory database, February and March 1996, and discharge diagnosis database January to April 1996.

	No.	Min.	Max.	Mean	SD	Reference Interval	Confidence Intervals
Total Calcium population	7911	1.29	4 55	2 29	0.22		
"Cleaned" calciums (all ages)	1286	1 79	3 16	2.29	0.14	2 00-2 53	2.00-2 02, 2.52-2 55
"Cleaned" calciums 18 – 65 years	670	1 79	3 16	2 30	0 13	2 01-2 54	1 96-2.05, 2 52-2 56
Auckland Healthcare Adult Reference Interval – Calcium						2 1-2 55	
Total Phosphate population	7784	0.09	4.83	1 24	0 47		
"Cleaned"phosphates (all ages)	583	0.26	2 63	1 11	0.27	0.65-1 65	0.61-0.67, 1 56-1 67
"Cleaned" phosphates 18 – 65 years	332	0.26	2 54	1 10	0 27	0 65-1 61	0 59-0.66, 1 55-1 67
Auckland Healthcare Adult Reference Interval – Phosphate						0 7-1 5	

The only limiting factor in applying this process to laboratory data is the development of the lists of excluding diagnoses. The AACC listing of diagnoses expected to give high or low values was a useful starting point, but the codes given in that publication were not broad enough to accurately reflect the way in which the exit diagnoses were coded at Auckland Healthcare. For each analyte therefore, a careful check must be made of what codes need to be added to this list to give a broad enough range of excluding diagnoses; this process should ideally have input from a clinical pathologist. The diagnoses of patients who fell outside the calculated reference intervals after the 1995 series were looked at individually and in some cases these diagnoses were added to the list if an appropriate clinical connection could be made. The calcium list appeared to only need a moderate number of additions, while the phosphate list became quite extensive. It was felt that it was better to be on the conservative side and exclude a broader range of diagnoses to bring the phosphate reference interval closer to the existing Auckland Healthcare interval. This must of course be considered and balanced against the cutting down of the numbers in the eventual reference sample group and the effect this will have on the confidence intervals as can be seen in Table 2 with the broader intervals for phosphate.

Having developed a computer program, it was then important to determine whether the reference intervals derived by this means were "valid". It is however recognised that this "valid" description will be a long-term judgement, made by people other than this author. There are however a number of points to consider:

- The reference intervals are close to those quoted currently for AHLS

  While this is one important benchmark, it should not in itself be seen as a rigid requirement for a number of reasons. Reference intervals may[8], and possibly should, be quoted for specific populations. The reference interval which has been determined on a hospitalised population drawn from a particular population with a specific demographic profile, should not be expected to be identical to a reference interval which was possibly determined on an active ambulant population at some time in the past. In fact, many reference intervals quoted currently in New Zealand have rather hazy histories and

derivations. Particularly in the case of calcium, it would be expected that a supine population should have a different reference interval from an ambulant one because of the influence of changes in protein in these two states.

- The 2-month studies for 1995 and 1996 produced essentially the same results.
  The results for February and March of 1995 and 1996 gave extremely close results for serum calcium, and once the extra diagnoses were added to the serum phosphates, these also gave very close results.
- Hospital-based reference intervals can be argued to have a valid scientific basis.
  Referring once again to Solberg's statement[16], it would seem that there is a valid scientific basis for using the results held in hospital databases, provided that the appropriate screening process is carried out. Also, while a normal distribution is no longer regarded as being a prerequisite, it was noticed that the screening process produced populations which are considerably less skewed, and the Ryan-Joiner plots came closer to the 45° line (Data available from the author).

Other information is also held on the diagnosis database, such as the ethnicity of patients. Appropriate ethical approval would of course need to be gained, but it would be interesting to use this process to generate ethnicity-based reference intervals. This could be of considerable interest in Auckland which now has an extremely varied patient demographic profile.

It is of course regrettable that the ICD diagnoses are not as yet available on patients using community laboratories as this would provide another valuable source of patient data.

Conclusion

This procedure is a practical and cost-effective way of generating reference intervals for hospital-based patients, with the potential for also generating ethnicity-based reference intervals. The next step must be to evaluate more analytes, to see if the process of using basically the AACC listing of excluding diagnoses, with extra diagnoses added relating to local usage, is transferable to other analytes. It would also be desirable to have the computer program trialled at other sites, but this will be dependent on the availability of the ICD-coded diagnoses. The laboratory database in most cases should be able to provide suitable data.

The acid test of course will be clinical acceptance. This can only be gained by further trialling, and convincing clinicians of validity is a long-term challenge.

Acknowledgements

Grateful thanks is due to the many people who provided assistance with this project; Alison Buchanan and Rod Kennedy for the original encouragement, Peter Maclaren for invaluable help with the Access program, to Eric Johnson and John Smith for the computer files of laboratory results, Kathy Murrell and Heather Hinton for the diagnosis files, Dr Tony Barker for guidance on the excluding diagnoses, Drs Cam Kyle and Rob Hawkins for clinical guidance, the ARQAG committee for support and useful feedback and the AIT Foundation for financial support.

Figure 5
Total phosphate population

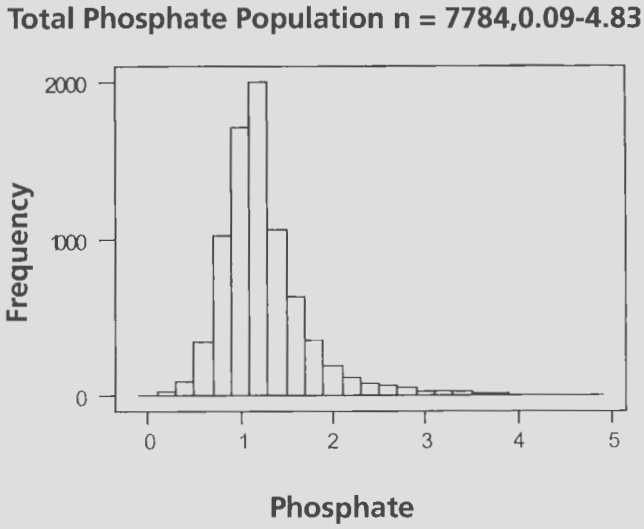
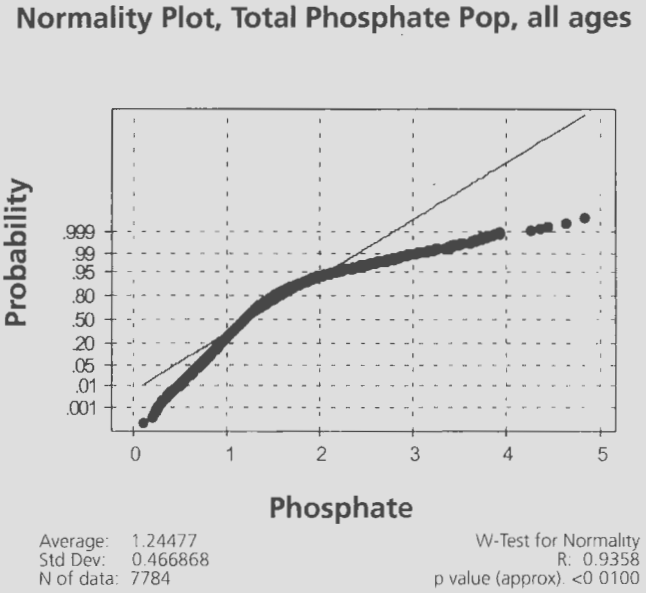


Figure 6
Ryan-Joiner normality plot of the total phosphate population



References

1. Mainland D. Remarks on Clinical "Norms". *Clin Chem* 1971:17:267-74.
2. Tietz N. Fundamentals of Clinical Chemistry. Philadelphia:Saunders, 1976.
3. Tietz N. Fundamentals of Clinical Chemistry. 3rd ed. Philadelphia: Saunders, 1987.
4. Solberg H. Approved recommendation [1986] on the theory of reference values. Part 1. The concept of reference values. *Clin Chim Acta* 1987;165:111-8.
5. Sasse E, et al. How to define, determine, and utilize reference intervals in the clinical laboratory. NCCLS Document C28-P March 1992:12 No.2.
6. Alstrom T, Grasbeck R, Hjelm M, Skandsen S. Recommendations concerning the collection of reference values in clinical chemistry and activity report by the Committee on Reference Values of the Scandinavian Society for Clinical Chemistry and Clinical Physiology. *Scand J Clin Lab Invest* 1975;35 (suppl 144).

7. Alstrom T, Grasbeck R, Lindblad B, Solberg HE, Winkel P, Viinikka L. Establishing reference values from adults: recommendation on procedures for the preparation of individuals, collection of blood, and handling and storage of specimens. *Scand J Clin Lab Invest* 1993;53: 649-52.
8. PetitClerc C. Approved recommendation [1987] on the theory of reference values. Part 2. Selection of individuals for the production of reference values. *Clin Chim Acta* 1987;170:S3-12.
9. Solberg H, PetitClerc C. Approved recommendation [1988] on the theory of reference values. Part 3. Preparation of individuals and collection of specimens for the production of reference values. *Clin Chim Acta* 1988;177:S1-S12.
10. Solberg H, Stamm D. IFCC Recommendation – theory of reference values. Part 4. Control of analytical variation in the production, transfer and application of reference values. *Clin Chim Acta* 1991;202:S5-12.
11. Solberg H. Approved recommendation [1987] on the theory of reference values. Part 5. Statistical treatment of collected reference values. Determination of reference limits. *Clin Chim Acta* 1987;170:S13-32.
12. Dybkoer R. Approved recommendation [1987] on the theory of reference values. Part 6. Presentation of observed values related to reference values. *Clin Chim Acta* 1987;170:S33-42.
13. Bhattacharya CG. A simple method of resolution of a distribution of a distribution into Gaussian components. *Biometrics* 1967;March:115-35.
14. Gindler ME. Calculation of normal ranges by methods used for resolution of overlapping Gaussian distributions. *Clin Chem* 1970;16:124-8.
15. Baadenhuijsen H, Smit JC. Indirect estimation of clinical chemical reference intervals from total hospital patient data. *J Clin Chem Clin Biochem* 1985;23:829-39.
16. Solberg HE. Reference values from patient data: possibility or delusion? *Scand J Clin Lab Inv* 1992;52(Suppl 211):43-4.
17. Kouri T, Kairisto V, Virtanen A, et al. Reference intervals developed from data for hospitalised patients:computerised method based on combination of laboratory and diagnostic data. *Clin Chem* 1994;40:2209-15.
18. Solberg H. Using a hospitalised population to establish reference intervals:pros and cons. *Clin Chem* 1994;40:2209-15.
19. Friedman RB, Young DS, eds. Effects of disease on clinical laboratory tests. Washington DC: AACC Press, 1989.
20. Annotated OCD-9-M International Classification of Diseases. 9th Revision, Clinical Modification Volume 1, 1995.

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

Title	Med Bio Journal Award.
Donor	Med Bio Enterprises Ltd. P.O. Box 11-016 Sockburn Christchurch
Nature	This award is intended to encourage and foster the submission of quality scientific or management papers to the New Zealand Journal of Medical Laboratory Science (NZJMLS).
Eligibility	All fellows, associate members and members of the NZIMLS are eligible. Applications will not be required and all papers published in each edition of the NZJMLS will be considered for the award.
Frequency	The award will be made following the publication of each edition of the NZJMLS.
Amount	The award will be for an annual sum of $600.00 which will be divided evenly between the number of journals published in each 12 month period.
Judging	Responsibility for selecting the most suitable paper in each journal will rest with the convenor of the awards committee. Where necessary the convenor will consult with the editor of the N.Z.J.M.L.S. The decision of the convenor will be final.
Period of Award	The Med Bio Journal Award is offered for an initial period of one year and will be reviewed annually thereafter.
Selection	Factors which will be taken into account when selecting the best paper in each journal will include: (a) Appropriateness of content of paper. (b) Layout and presentation. (c) Evidence of original work or ideas. (d) Previous publication experience of the author(s). Quality papers by first time authors are encouraged. (e) The paper which makes the most valuable contribution to a branch of medial laboratory science.

Winner of the Med-Bio Journal Award for the March issue was Keith Shore of Auckland Hospital for the article *"Potential for clinically misleading susceptibility results due to extended spectrum beta-lactamases."*

Brief Communication

Irreversible Serum Gelatinization During Striking Eosinophilia, A Case Report

Hristo Baltov, MD,
Clinical laboratory, District Hospital of Lung Diseases,
Sofia, Bulgaria
Address for Correspondence: Hristo Baltov, 309 Sllvnitza Boulevard, 1202 Sofia, Bulgaria.

Blood from a patient with a lung problem, probably due to allergic granulomatosis, was tested in our laboratory. Only the erythrocyte sedimentation rate (ESR) and the eosinophilia from the differential counting were pathological. They measured 130mm and 0.36 (36%), respectively. Haemoglobin measured 127 g/l and WBC 6.6 x 10 °/L. Blood serum was derived after clotting and used for routine tests. The rest of the serum was stored overnight in a glass container at a temperature of 4°C. The next day additional tests were to have been done, but the serum was found to have become gelatinous. This gelatinization was probably due to an arginine-rich major basic protein (MBP). The main part of the eosinophil crystaloid core[1] MBP readily binds to the serum proteins and possibly to the cell membrane through its two disulphide bonds.

The protein readily polymerizes[2]. Another protein associated with human eosinophil granules is eosinophilic cationic protein (ECP)[3]. A number of properties associated with ECP include alteration of the coagulation pathway[4].

The gelatinous serum was stored for one week in the refrigerator and no further changes were observed. Blood from the same patient was tested repeatedly and the range of eosinophilia was found to be from 0.02 to 0.08, and the serum did not gelatinize.

References

1. Ackerman S J, Durack D T, Gleich G L. Eosinophil effector mechanisms in health and disease. In: Gallin J L, Fauci A S (eds). Phagocytic Cells. Advances in Host Defence Mechanisms. Raven Press, New York: 1982; vol 1: 269 – 93.
2. Kay A B. Eosinophils as effector cells in immunity and allergic disorders. In: Korenblat Ph E, Wender H J (eds). Allergy Theory and Practice (2nd ed). W B Saunders Company, Philadelphia:1992; 73.
3. Olsson I, Venge P. Cationic Proteins of human granulocytes: II. Separation of the cationic proteins of the granules of leukemic myeloid cells. *Blood* 1974; 44: 235 – 46.
4. Venge P, Dahl R, Hallgren R, Olsson I. Cationic proteins of human eosinophils and their role in the inflammatory reaction. In: Mahmoud A A F, Austen K F (eds). The Eosinophil in Health and Disease. Grune & Stratton, New York:1980;131 – 46.

Letter to the Editor

I am writing to express my gratitude as the recipient of the the Jim Le Grice Award to attend the National Conference celebrating 50 years of the NZIMLS. Firstly I would like to apologise for the extreme lateness of this letter but I became rather snowed under with Polytechnic work after returning back to Christchurch from the conference and it didn't let up until I'd sat my exams.

Congratulations to a successful conference, I personally had a very good time there. It provided me with a good audience at the Immunology session for the case study I presented as the condition of winning the award. This is the perfect opportunity both for myself to improve my public speaking skills and hopefully to present some interesting information and teach others about work that we do. No one fell asleep any way.

This award provides an invaluable opportunity to people like myself whom otherwise would not be able to attend one of these conferences and I am honoured to have been the recipient in 1996. I think it is important to encourage others who are eligible i.e. a laboratory assistant or student, to apply for this award. So those of you working with possible candidates, please make sure they know about the award so they can apply.

Good luck to those who apply this year and I hope that the winner will enjoy themselves as I did last year.

Yours sincerely
Penny Newton
Immunology Unit, Canterbury Health Laboratories

Fellowship Regulations

1. Introduction

1.1 Fellowship of the New Zealand Institute of Medical Laboratory Science is the highest academic category of membership and carries the right to use the letters FNZIMLS.

1.2 Resignation from the NZIMLS entails forfeiting Fellowship and all privileges associated with this membership category.

2. General

2.1 Fellowship of the NZIMLS may be gained
- (a) by examination, or
- (b) by submission of a thesis, or
- (c) by publications

2.2 Applicants must:
- (a) be financial members of the NZIMLS
- (b) have been a Member of the NZIMLS for not less than two (2) years.

2.3 Applications must be made on the prescribed application form and must be received by the Convenor of the Fellowship Committee together with an application fee of $50.00. This fee will not be refunded except in extenuating circumstances.

2.4 An examination fee, which Council from time to time shall determine, shall be payable by all candidates prior to sitting the examination or when submitting a thesis or publications.

2.5 Three copies of prepared work in English (thesis, dissertation or publication summary) must be submitted (laser quality).

2.6 The NZIMLS will not accept material that has been submitted or accepted for any other qualification. Such material may be used only as supportive data.

2.7 All income accruing from the commercial use of any original work shall remain the property of the author.

2.8 Any further applications will not be accepted from candidates who have previously made three (3) unsuccessful attempts.

3. Examination

3.1 Applicants must forward their application together with the fee by March 31 in the year they intend to sit.

3.2 At the time of application an applicant shall supply satisfactory evidence of at least one years postgraduate experience in the subject nominated for the examination.

3.3 The examination will consist of two parts
- (a) Part 1: Two written papers each of three (3) hours duration.
- (b) Part 2: Upon successful completion of Part 1 (or qualification under subsection 3.12) a dissertation 3000-5000 words which directly relates to the part 1 examination.

3.4 The subjects available for Fellowship by examination shall be those approved by the NZIMLS as major disciplines in the Medical Laboratory Sciences.

3.5 Part 2 must be submitted within three (3) years of completing Part 1. Extensions may be granted in special circumstances.

3.6 The dissertation may take the form of:
- (a) a review
- (b) development of an hypothesis
- (c) any other presentation which meets with the approval of the Fellowship Committee

3.7 The title and synopsis of approximately 250 words shall be forwarded to the Fellowship Committee by March 31 in the year following successful completion of Part 1.

3.8 The dissertation shall be original, in English and be approximately 3000-5000 words.

3.9 Candidates are referred to the instructions for authors in the New Zealand Journal of Medical Laboratory Science 1991; 45 (4) 108-11.

3.10 To pass Part 1 candidates must gain a minimum of 50 per cent and for Part 2 candidates must gain 'a pass'. In the event of a candidate failing Part 2, candidates may be given the opportunity to revise and resubmit their dissertation for reassessment, at the discretion of the Fellowship Committee.

3.11 The Institute reserves the right to publish in the NZIMLS Journal any dissertation submitted.

3.12 Medical Laboratory Scientists who hold a Specialist Certificate are exempt from sitting the Part 1 examination. This clause will be effective for a maximum period of three (3) years after the adoption of these regulations.

4. Thesis

4.1 The candidate must nominate a senior medical laboratory scientist or a specialist medical practitioner, or a suitably qualified university biomedical scientist to act as supervisor for the work. The candidate must submit regular reports signed by the supervisor to the Fellowship Committee. The Committee reserves the right to appoint an additional supervisor.

4.2 At the time of application, the applicant must submit to the Fellowship Committee the title and synopsis of the thesis.

4.3 The thesis is required to be submitted no later than three years following acceptance of the synopsis. Extension may be granted in special circumstances.

4.4 Normally the thesis should not exceed 20,000 words.

4.5 The thesis must be the original work of the candidate. The extent of work contributed by collaborators must be indicated in writing and suitably acknowledged.

4.6 The thesis must be based on the style of Master of Science by thesis requirements of Universities in New Zealand.

5. Publications

5.1 A minimum of five peer reviewed articles published in international or discipline acknowledged scientific journals may be submitted for consideration. A review of the submitted articles of 3000-5000 words must also be submitted.

5.2 The articles must be submitted to the Fellowship Committee prior to the commencement of the review article together with a synopsis of the review.

5.3 The candidate must state the contribution he or she made to the publications. Written statements from the other contributing authors are required.

6. Fellowship Committee

6.1 The Fellowship Committee shall consist of three members appointed by Council with at least two of the appointees being Fellows of the NZIMLS. The committee will be reappointed annually.

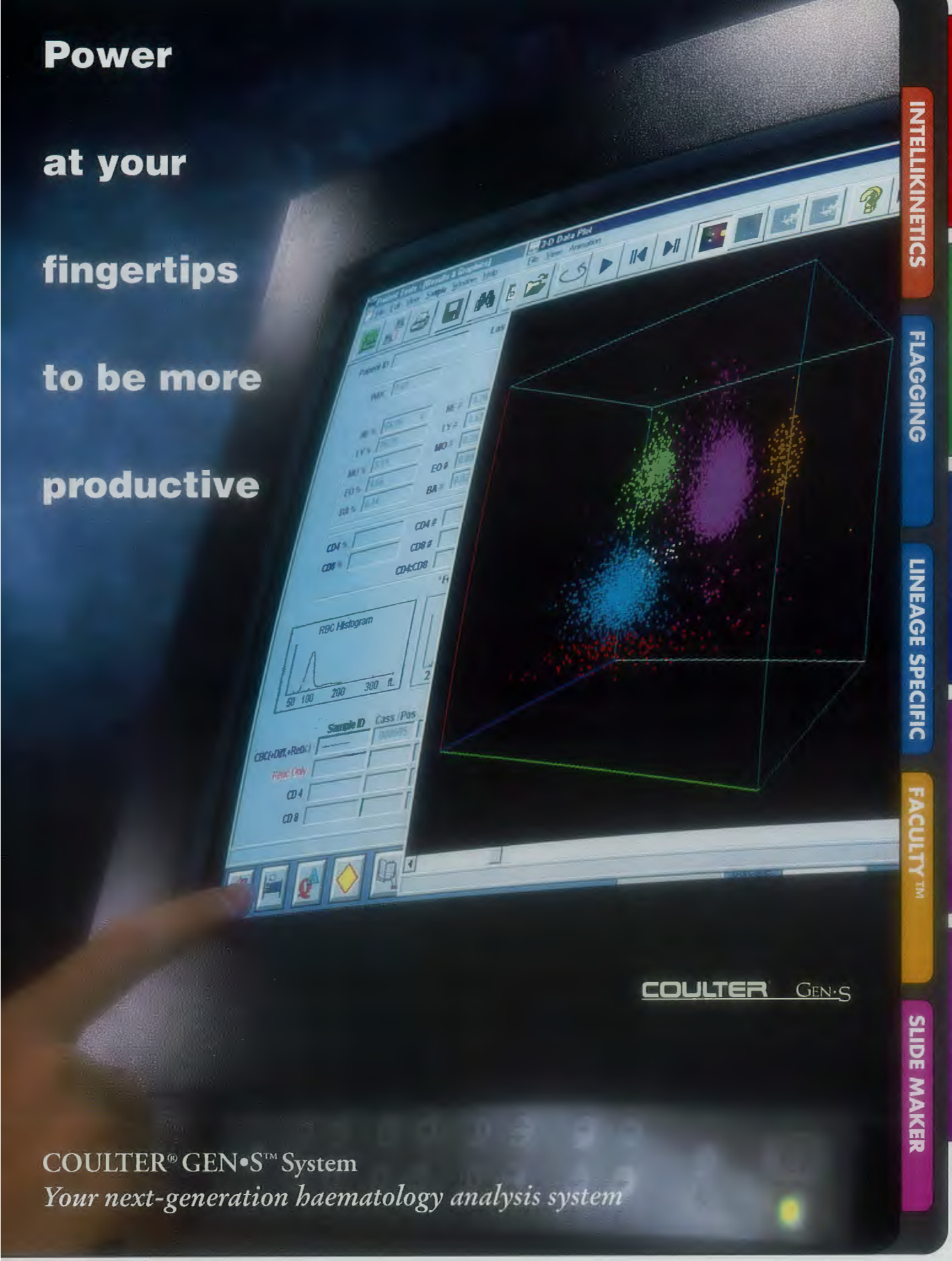
6.2 The Fellowship Committee has the power to appoint examiners and assessors as necessary for the conduct of examinations.

6.3 The Fellowship Committee shall submit the examiners/assessors recommendations to Council.

6.4 The Fellowship Committee may use any reasonable means of establishing the bona fides of a candidate. Any enquiries so instituted shall be regarded as confidential.

6.5 The Fellowship Committee reserves the right to request further reports on a candidate as necessary.

6.6 The Fellowship Committee shall from time to time make recommendations to Council on changes to the Fellowship regulations.



COULTER® GEN•S™ System

Your next-generation haematology analysis system

COULTER™

SCIENCE SERVING HUMANITY

Coulter Electronics (NZ) Ltd: PO Box 109518 Newmarket Auckland
Free Call 0800 442 346 Free Fax 0800 442 347
Internet: http://www.coulter.com

PPTC Courses 1997 (in brief)

July:	Laboratory Management Course
September:	Blood Cell Morphology Course

PPTC Activities 1997

Monthly:	Pacific Regional Quality Control Programme
March to November:	Western Samoan Laboratory Technology Course 10 students sitting Year 1 examination in February
May:	Mike Lynch (Tutor/Co-ordinator) At the request of WHO Regional Headquarters in Manila, will act as consultant for a Regional Workshop on the Regional External QC Programme
Ongoing:	Evaluation of courses for Rural Laboratory Workers – Papua, New Guinea.– Pacific Island Student Attachments, New Zealand Laboratory Training for Technologists (x 3 from Vietnam)

Student Speech

Mclsaac Houhiapa from Medical Laboratory, Central Hospital Honiara, Solomon Islands spoke on behalf of the students who had just been presented with the Medical Laboratory Update Course Certificate as follows-.

"Mrs Margaret Chamberlain, Dr Ron MacKenzie, Tutors, Hospital Laboratory staff, CITEC staff, PPTC staff, New Zealand Government ODA, World Health Organisation and Norman Kirk Trust, Invited guests, Friends, Ladies and Gentlemen.

This is a great opportunity and privilege for me to say Hello and express my gratitude to you all for coming to witness this Graduation Ceremony.

On behalf of my colleagues from Vanuatu, Fiji, Kiribati, Papua New Guinea and Solomon Islands, I must say thank you very much New Zealand Government, non-government organisations and individuals for what you have done towards our training and hospitality.

To our sponsors: New Zealand Government ODA, World Health Organisation and Norman Kirk Trusts, we are really grateful for the scholarships you have offered us.

To Ms Vanessa Pointon and CITEC staff, thank you for your continuous support and orientation on our first week in New Zealand. And, of course for the stipends you have paid us fortnightly which are just adequate but I just wonder why most of us run out of money so quickly.

To our Tutors, you are excellent teachers. It is very generous of you for sacrificing your time in teaching us. Thank you for the skills and knowledge you have taught us. And, for the Hospital Laboratory staff for your support and teaching in the laboratory

To PPTC staff, especially Mr Mike Lynch, you are the catalyst necessary for the well being, improvement and changes of the Medical Laboratory Services in the Pacific Island nations, not only in training but Quality Control as well.

You know the Pacific very well and likewise they know you. Please maintain your patience with us, as we will be always looking back to you for directions and assistance whenever we need to.

To Mrs Christine Story, we really appreciate your support during our times here. Especially for making sure milk is always there for tea breaks. You might notice that some of us have put on more weight, perhaps because of too much milk consumption.

All of you together have offered us a successful training. To anyone who I might have missed out, be in academic or non-academic, I thank you all.

May I assure you that we are more than satisfied and learned a lot from this course. This training is very much appropriate and definitely it would help to improve certain areas within the Medical Laboratory Services in our hospitals.

Finally but not least, we have learned a lot about your beautiful country – New Zealand, The land of friendly people. The obvious problem we encountered is the cold weather, but we managed to cope with the situation. After all, there are many warm clothes to wear around here.

Soon we are happy to fly across the sky to our islands. We will miss you all, our helpful Kiwis, but the good memories of your country will always linger in our hearts. We will say goodbye, but I do not wish to say goodbye, because it is painful for me to say so, rather I prefer to see "See you again".

Finally, once again, on behalf of my colleagues, I wish to convey my best wishes and all the good luck to you all. May your highly respected profile be maintained in our Pacific region at all times.

I thank you all the Kiwis and New Zealand at large."

Mclsaac Houhiapa

WATER WANDERINGS

WHO WATER DECADE 1980 to 1990 – Was it a failure?

In the 1980s about 200,000 people gained a safe supply of drinking water and 80,000 are better means of sanitation than a disgusting bucket or a walk in the fields. Faster construction of pipes, pumps and pit latrines all over the developing world was the declared aim of the "International Drinking Water Supply and Sanitation Decade" and it happened.

The World Health Organisation (WHO). The Decade's guardian of statistics, says that services were laid on at twice the rate of the 1970s.

This advance was well short of the lofty goal widely published when the Decade was launched "safe water and sanitation for all by 1990s". The extra 715 million people with new taps and pumps have out-paced the 614 million population growth in the third world. At the end of the decade, we saw 300 million more people without sanitation than when it began. An unrealistic target had been set which was counter productive.

Was the Water Decade a failure? Let us look at what happened in India and in Nigeria.

India

In the 1970s, UNICEF undertook a survey of the rural water supply programme in which it had been investing heavily since the turn of the decade. Each discovered that 80% of the pumps installed were out of action. This prompted a quest for a sturdier, less breakable hand pump and for a system of maintenance reaching right down into the village byways.

Ten and half years later, the rural water supply situation had been transformed. Everywhere in the country-side, the distinctive shape of the "India Mark II" now rears its pump head. In 1980, just under a third of the country's villages, or 162 million people, had a safe water supply. By the end of the water decade in 1990, one and a half million India Mark 11 pumps had been installed serving

somewhere between 225 and 300 million people or nearly two thirds of Indian villages.

80% of the pumps are now in working order at any one time. This is not only a tribute to the durability of the Mark II pump, and to the careful system of quality control the Indian government introduced but it is also because local villages have been trained in "bare foot" mechanics and pump repairs. It is an extraordinary success story due to the installation of appropriate technology, a standard pump manufactured in India, local maintenance and political commitment.

Nigeria

In the mid-1980s the Commissioner of Health of Anambra State in south east Nigeria, launched a crusade against the Guinea Worm (Dracunculus medinensis) which is transmitted via drinking water. Guinea worm affected thousands of villages in Anambra – especially in the rice growing region of Abakaliki.

The Commissioners crusade reached over 200 thousand sufferers in the area. A health education programme taught villagers that they had contracted their worms by drinking dense grey/green water from ponds shrunk by sun and drought and swarming with water fleas. These tiny cyclops play intermediate host to the guinea worm larvae. When imbibed by a human being, the larvae burrow through the stomach wall and sail around in the lymphatic system before emerging fully grown a year later. They can come out of the breast, tongue, genitals – anywhere, though they usually emerge from the leg. The pain of the ulcer drives the victim to plunge the effected part in cool water, starting the cycle of infection all over again.

In Abakaliki, villagers were initially sceptical that the worms came from drinking pond water. Towards the end of the 1980s, a programme of 400 new bore holes began operation under a UNICEF assisted state water and sanitation programme. A new protected water supply has since made all the difference.

At the end of the decade, a local primary school teacher noted that he had just one case of guinea worm in the school compared to over a quarter of the pupils in previous year. He further noted that in January, which was harvest time that the majority of the villagers would be on their beds. After the installation of the bore holes, this was no longer the case. The villagers could see the difference between the past and present.

The Quantity Key

80% of disease in developing countries is related to poor drinking water and sanitation. Water quantity is even more important than quality when it comes to health because a lot of water is needed to keep the body and household clean. The key to increasing the water consumption of the poor is giving them easier access to a supply. Until their distance from a source is reduced to less than five minutes walk, water consumption does not rise significantly.

Households with dishwashers, washing machines and sprinklers use approximately 1,000 litres of water a head per day. Households, depending on a stream or hand pump several miles distance, use in contrast two to five litres of water a head per day.

Humans can only live a few days at most without water. Water is life.

Water for Survival

"Water For Survival" is New Zealand's voluntary assistance to people in developing countries for basic water supply, sanitation and welfare (in association with United Kingdom Water Aid). Currently, Water For Survival with the assistance of the Pacific Development and Conservation Trust is working on two water supply and sanitation projects in the Solomon Islands.

Primary Health Care

Most children can survive without medicine – none without food 400 million packets of Oral Rehydration Salts (ORS) are produced each year as part of the international campaign to reduce deaths from diarrhoea – still the biggest killer of children in many poor countries. It must however, be introduced in ways that foster self determination not dependency. It should certainly be given high priority. In some areas of the world, Salt packets were originally given to mothers free. Their provision was then commercialised.

In Egypt for example, the Oral Rehydration programme was originally upheld as a success story. The rate of usage for Oral Rehydration Salts in the 1990s has plunged from more than 50% down to 23%. Poor families are brainpwashed into spending food money on these products rather than using potentially more effective, less expensive, home made cereal drink. A "simple solution" for child survival has become yet another way of exploiting the poor.

Health workers in the Philippines found that in the Makapawa community based health programme, that the money poor families spend on medicines instead of food contributed to child under-nutrition and high mortality. By making remedies for common problems at home, they spent less on pills, more on food and their children's health improved.

In Kenya, the introduction of fees at a centre for sexually transmitted diseases, caused a sharp decline in attendance and an increase in untreated infection. In China, user fees for TB treatment, led to millions more cases of infections.

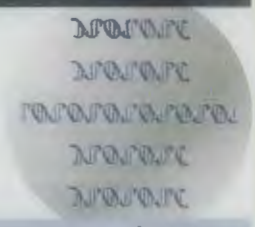
We have similar parallels developing in our New Zealand Health system.

Advertisers In This Issue

Buy A QIAamp Blood or Tissue Kit

and Receive a Free 100 Unit Pack of Qiagen Taq Polymerase.

- QiaAmp Blood and Tissue Kits enable you to isolate genomic DNA within minutes from blood and most tissues.
- Neither you or your sample are exposed to hazardous chemicals. DNA is perfect for subsequent amplification or Southern blotting applications.
- Qiagen Taq Polymerase is licenced for use in clinical and diagnostic applications. The quality control of Taq is unparolleled.



Qiagen Taq Polymerase	QIA1005986JMS97M	$ 40.00
QIAamp Blood Kit (50)	QIA29304JMS97M	$240.00
QIAamp Tissue Kit (50)	QIA29104JMS97M	$210.00

QIAGEN

Offer Valid until July 18 1997. To qualify you must use cat. nos above.

LabServ

New 50 ml Conical Tube

Manufactured by LabServ, ISO9001 registered NZ company. The tube is manufactured from crystal clear POLYCARBONATE, giving better optical clarity.

- Autoclavable
- White cap and writing panel for marking clarity.
- Clearly graduated from 5ml to 50ml in 5ml increments
- Available packed standard hygiene or Gamma Sterile

Cat No:	Cat No:
LBS5007JMS97M	LBS51075JMS97M
50ml Centrifuge tube packed in sleeves of 10, standard hygiene	50ml Centrifuge tube packed in sleeves of 10, Gama sterile
Carton/300	Carton/300
$92.00	**$115.00**

Precision Pipetting

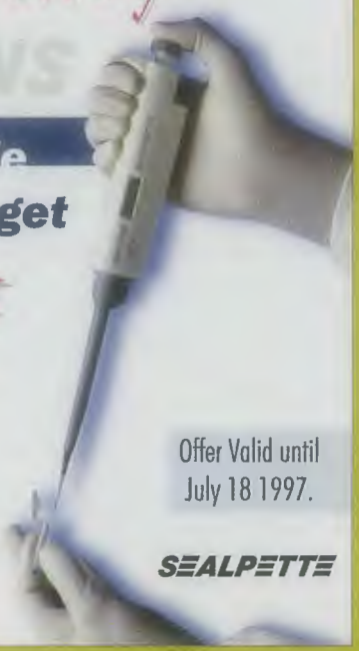
from JENCONS

Buy 2 Variable Pipettors, and get

1 FREE

JEN480-000JMS97M	0.5-10µl
JEN480-001JMS97M	5-50µl
JEN480-002JMS97M	50-200µl
JEN480-003JMS97M	200-1000µl
JEN480-0004JMS97M	1-5ml

$250.00 each



Offer Valid until July 18 1997.

SEALPETTE

Sartorius Master pro Series

A New Class of Professional Weighing Technology

- Excellent new display and modular design
- Total ease of operation with unique support in quality systems
- Full automatic calibration with isoCAL
- Reproducibility test with reproTEST
- Input of alphanumeric sample
- Complete range from 1mg to 34kg

sartorius

BIOLAB SCIENTIFIC LTD

Greiner Labortechnik

Greiner Labortechnik has one of the most modern production facilities in Europe, specialising in single-use products for the medical industry. The certification of ISO 9001 and EN 46001 guarantees consistent high quality of our products including the Vacuette plastic Blood Collection System.

NEW the VACUETTE® Sandwich Tube.

Based on the reference method of coagulation tests, where tubes made from polyprapylene are used, this tube has been developed to consist of "two tubes". An outer tube made of PET guarantees the stability of vacuum inside the tube, and an inner tube made of polypropylene ensures the reliability of test results.

Greiner - The only company able to offer the complete range of blood collection tubes in plastic.

Whisper Quiet

Lab. Centrifuges

sigma

Request a demonstration or trial today.

- Quality German manufacture.
- 100 - 15,300 rpm. To meet all needs, with a wide range of rotor's available.
- 10 program memory with acceleration and deceleration profiles for ease of set-up.
- Microprocessor control with smooth, quiet operation.
- Meets all international safety requirements.
- Full service support available from Biolab Scientific.
- Various models are available.

Histology Cassettes

4¢ **Competitive Prices**

- 9 colours available: White, yellow, blue, pink, green, orange, red, gold, & aqua to distinguish between specimens / Pathologists.
- Writing surfaces for accurate identification of specimens.
- Discounts available for bulk purchases or standing orders.

$42.00 / 500

Competitive Prices

BDH Microtome Blades

Dispenser of 50

- Unique ceramic coating hardens blade edges increasing blade life and reducing cost.
- 2 chemical treatments ensures blade integrity and eliminates knife marks.

$165.00

Cat No. BDH40410116/00JMS97M

New BDH Catalogue

Free

- Available on request

Info Reply Form

- 1. ☐ Qiagen QIAamp Blood and Tissue Kits and *Taq* Polymerase
- 2. ☐ Jencons variable pipettors
- 3. ☐ LabServ 50ml Conical Tube
- 4. ☐ Sartorius Master[Pro] Series balances
- 5. ☐ Greiner Labortechnik Vacuette Sandwich tube
- 6. ☐ Sigma Lab Centrifuge
- 7. ☐ Histology Cassettes
- 8. ☐ BDH Mircotome Blades
- 9. ☐ Copy of the New BDH Catalogue
- 10. ☐ Other (please List). .....

Prof / Dr / Miss / Mrs / Mr
Name:
Organisation:
Dept:
Postal Address:
Delivery Address:
City:
Phone:
Fax:
Email:

Auckland
0800 807 809
Palmerston North
0800 733 822
Christchurch
0800 806 974

Visit our Homepage

http//:www.biolab.co.nz

INSTITUTE BUSINESS
Office Bearers of the N.Z.I.M.L.S. 1996-1997

President
Shirley Gainsford
Valley Diagnostics, Lower Hutt

Vice President
Anne Patterson
Lakeland Health, Rotorua

Secretary/Treasurer
Trevor Rollinson
Southern Community Laboratories, Dunedin

Council
Pip Sarcich, Chris Kendrick, Les Milligan
Tony Mace, Grant Moore

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
Rob Siebers
Dept. of Medicine, Wellington
School of Medicine, P.O. Box 7343
Wellington South.
E-Mail:rob@wnmeds.ac.nz

Membership Fees and Enquiries
Membership fees for the year beginning April 1, 1997 are:

For Fellows – $101.40 GST inclusive

For Members – $101.40 GST inclusive

For Associates – $48.10 GST inclusive

For Non-practising members – $44.20 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 Report – May, 1997

Membership	01.04.97	25.12.96	17.08.96	14.06.96
	974	1022	1003	1002
Less resignations	2	5	7	6
Less G.N.A.	10	6	13	4
Less deletions	–	44	–	–
Less deceased	1	1	–	–
Less duplications	2	1	–	–
	959	**965**	**1013**	**992**
Plus applications	17	9	8	41
Plus reinstatements	–	–	1	–
Total	**976**	**974**	**1022**	**1033**

Composition

Life Member (Fellow)	11	11	11	11
Life Member (Member)	9	9	9	9
Fellow	20	20	19	19
Member	595	592	618	621
Associate	263	265	287	297
Non Practising	53	52	51	49
Honorary	25	25	27	27
Total	**976**	**974**	**1022**	**1033**

New Members
P. DUFF, Taranaki Medlab, A. SAMWAYS, Otago School of Dentistry, S. PRATT, National Womens Blood Bank, R. ACERO, S STEFFENS, Oral Pathology, M. CARTER, H. MUIR, Transfusion Medicine, K. STADE, Nelson Diagnostic Laboratory, J. BARNETT, Tauranga Medlab, T. TAYLOR, Dunedin, A. FRAEI, Thames, T. LEYDON, A. CHAND, Auckland Medlab, J. YEATES, Middlemore, B. SMITH, Hutt, L. GOODMAN, Medlab BOP, J. CHILDS, Auckland Medlab.

NEW ZEALAND INSTITUTE OF MEDICAL LABORATORY SCIENCE 1997 CALENDAR

23 May	Applications close for Specialist Certificate examinations
23 May	Applications close for QTA examinations
27 June	Nomination forms for the election of Officers and Remits to be with the Membership (60 days prior to AGM)
1 July	Annual Staffing Survey
8/9/10 July	Fellowship examinations
18 July	Nominations close for election of Officers (40 days prior to AGM)
6 August	Ballot papers to be with the membership (21 days prior to AGM)
13 August	Annual Report and Balance Sheet to be with the membership (14 days prior to AGM)
20 August	Ballot papers and proxies to be with Executive Officer (7 days prior to AGM)
25 August	Council Meeting – Wellington
27 August	AGM – Wellington
26-29 August	Annual Scientific Meeting – Wellington
5 November	QTA examinations
12/13 November	Specialist Certificate examinations
December	Council Meeting

Council Newsletter

Strategic Plan

The two most important goals of Council were discussed at the April Council meeting:

1. To develop an annual business plan.
2. To provide a quarterly journal on a cost neutral basis.

The budget for 1997 predicted another deficit which the NZIMLS cannot sustain. The main causes are seen as: A fall in membership.

Journal cost exceeding income.

We are aiming to keep the annual subscription the same and institute the following:

Reduce spending and run a strict budget 1997.
Marketing plan to get new members.
Examine possibility of sponsorship.
Increase cost of NZIMLS activities to non members.

The budget will be monitored monthly and new activities curtailed until 1998.

MOLS – Medical Laboratory Technologists Board

MOLS is the MLTB pilot programme for auditing the continuing competence of medical laboratory scientists. The NZIMLS is helping with the administration of the programme and the Haematology Special Interest Group has met with members of the MLTB to make suggestions on MOLS. The NZIMLS has advised the MLTB that there is still a lack of understanding of the MOLS programme and more communication from the Board is needed.

Inquiries on MOLS Phone the WTB
(Phil Saxby or Sonia Thistoll) 04 499 7979

Examinations

SPECIALIST LEVEL and QTA

This is the last year for the Specialist level examination which is being replaced with the new Fellowship. The 1996 Histology examinations have been audited and were in order.

Most 1996 examiners reports are now filed in the Executive Office and are available on request.

NEW FELLOWSHIP

Full information is in this journal. Costs are to be notified at the 1996 Annual Scientific Meeting.

Regulation

The final draft report of the "Review of the Arrangements for Licensing Medical Laboratory Technologists" has been received from the Ministry of Health. A copy can be obtained from the Executive Office.

NZIMLS History

Anne Paterson is investigating facilities for the archiving of NZIMLS historical documents.

National Medical Laboratory Science Day

This was an International Association of Medical Laboratory Technologist initiative and we apologise for the short notice that laboratories received.

John Aitken wrote an article on Tuberculosis for publication in newspapers and at least one laboratory, Rotorua laboratory, achieved a photograph and short item in the local newspaper. Comments on this new IAMLT initiative would be appreciated, especially if your laboratory participated. Forward them to the Executive Office.

Journal

Apologies for the late March issue. The final layouts were lost by NZ Post and the disc containing the cover layout has been discarded by Gardyne design. Council is attempting to get the future issues out on time.

Badges

Registered Medical Laboratory Scientist badge available from the Executive Office. Cost $5.00.

CONFERENCES

1997	**Wellington – NIL Bureaucrati Carborundum**	**Apply Now**
1998	Palmerston North	1 Sept - 4 Sept
1999	Christchurch South Pacific Congress	23 Aug - 27 Aug

NZIMLS	MLTB
Council: Elected by members	**Board:** Appointed by Minister of Health
Membership: Voluntary – open to all laboratory workers.	**Membership:** Compulsory for all who practice medical laboratory science in New Zealand as medical laboratory scientists.
Purpose: To promote professional excellence in medical. laboratory science.	**Purpose:** Act as guardians of the public interest in professional standards in medical laboratory science.
Main Functions: 1. Represent and act where appropriate in the interests of the profession and its members. 2. Support ongoing education: – SIG workshops/seminars – Annual Scientic Meeting – South Pacific Congress 3. Publish a scientific journal/newsletter 4. Conducting examinations: – Fellowship, Specialist and QTA levels 5. Develop and maintain contacts with kindred societies overseas: – Membership of the IAMLT – Support of the PPTC.	**Main Functions:** 1. Maintain register of recognised technologists. 2. Issue the Annual Practising Certificate. 3. Establish and maintain the recognised competencies required for registration. 4. Conduct examination of certificate level. 5. Consider concessions to registration. 6. Maintain disciplinary functions set out in legislation. 7. At all time, act in the interests of the public and patients.
Responsible to: The members of the Institute.	**Responsible to:** The Minister of Health.


Hands up...
if you're totally satisfied with
your immunoassay results.

BM Hitachi *Elecsys®* 2010

The quality of results obtained from a BM Hitachi *Elecsys® 2010* is unsurpassed in today's immunoassay laboratory. But great results are not all you get.

For a start it's random access, fully automated, and incredibly easy to use in stand alone or bidirectionally interfaced mode.

2-D bar-codes on reagents kept on board are automatically read by the analyser and contain all the instructions to run the tests without the fuss of manual keying.

Bar-coded samples can be continuously loaded into its sample disk for uninterrupted operation, or an optional sample rack system facilitates the seamless exchange of racked specimens with your chemistry system(1).

STAT results such as Troponin T, CK-MB or hCG are available just 9 minutes after sampling.

Most likely one BM Hitachi *Elecsys® 2010* is all you will ever need to accommodate your immunoassay workload.

But if extra capacity is what you want, simply connect two *2010's* with the optional sample rack conveyor. The BM Laboratory System Manager (LSM) software will optimise specimen distribution and run both analysers automatically, while providing one easy interface to your host.

However, at the end of the day superb analytical performance is what the user of a BM Hitachi *Elecsys® 2010* really wants, and gets(2).

All considered, it's no wonder Boehringer Mannheim's BM Hitachi *Elecsys® 2010* is raising eyebrows around New Zealand.

Not to mention quite a few user hands as well, it seems.

BM Hitachi *Elecsys® 2010.*
Always great results.

		Total imprecision (%CV)		*Within-run imprecision (%CV)*	
	Measuring range	near limit of detection	within patient range	near limit of detection	within patient range
TSH	0.005 – 100 mIU/L	8.9	3.7	5.4	2.8
PSA	0.01 – 100 µg/L	2.4	2.9	1.4	1.3
hCG	0.5 – 10000 IU/L	4.4	5.7	4.2	2.7
Troponin T	0.01 – 25 µg/L	5.8	5.4	2.5	2.7
CEA	0.2 – 1000 µg/L	2.6	2.2	1.3	1.6
Estradiol	36.7 – 16882 pmol/L	9.0	5.3	6.5	2.7

(1) Using BM Hitachi 5-hole racks. (2) BM evaluation data (see table above).

BOEHRINGER MANNHEIM
LAB DIAGNOSTICS

Boehringer Mannheim NZ Ltd
Toll Free: 0800 652 634
Telephone: (09) 276 4157
http://www.boehringer-mannheim.com

mannheim boehringer

Interview with the Editor

Name:	Trevor Rollinson
Present position:	Charge Scientist Biochemistry and Quality Manager Southern Community Laboratories, Dunedin
Training:	Ashburton Hospital, Christchurch Hospital
Previous employment:	Biochemistry Laboratory Canterbury Health Laboratories

Elected to the Council in 1994 as Region 4 representative. Given responsibility for reviewing the Specialist examination and Fellowship. Represented the NZIMLS on the Board of Studies for BMLSc course at Massey University.

Main Interest in Discipline

Automation and systems management.

Highlight of my career

The planning for and successful introduction of dual Hitachi analysers into the Biochemistry Department, Christchurch Hospital.

The worst moment of my career

While on call at Ashburton Hospital one evening an Orderly came in for a chat, he was smoking and threw the butt into the rubbish bin, the next moment the bin exploded into flames.

Main Issue Facing Medical Laboratory Scientists

The competitive health environment and the barriers being imposed to dialogue and professional contact between individual Scientists.

Trevor Rollinson

During your term on Council, what do you hope to achieve?

I want to see Fellowship successfully introduced with a significant increase in the number of Fellows of the Institute.
As Treasurer, I want to see the core activities of the Institute run as efficiently as possible. Any surpluses generated can be used for new projects and developments for the benefit of members.

New Products and Services

Clements Centrifuges Back in New Zealand

Clements have been designing & Manufacturing Centrifuges in Australia since 1908. Medica Pacifica have secured the NZ & South Pacific distribution to this comprehensive range of benchtop centifuges. From the Orbital 100 Microcentrifuge through to the Orbital 500 large capacity (including micro titre plates) centrifuge the quality of workmanship is unsurpassed.

Clements also manufacture Blood Storage Cabinets from 20 litre capacity or made to specified dimensions. For further information contact Medica Pacifica. Ltd. Ph 0800-106-100 or E-mail medica@nznet.gen.nz.

Tuta Laboratories Blood Bags

Medica Pacifica have been appointed the New Zealand & South Pacific distributors of the Tuta Laboratories Blood Bank range of products.

Tuta have been a major supplier of blood collection bags to New Zealand blood banks for many years, servicing the market from their Sydney manufacturing site.

Medica Pacifica will carry stock of the Tuta range of blood bags and other related equipment to better service the local requirements.

For further information contact

Medica Pacifica Ltd Ph 0800-106-100 or E-mail medica@nznet.gen.nz

DAKO Autostainer

DAKO is a world leader in immunohistochemistry and now they have the DAKO Autostainer, a universal automatic staining system for Immunohistochemistry. The advanced system has proved to produce slides of extremely high quality, time after time.

The DAKO Autostainer mimics the way you work, being able to run simple and complicated staining runs at the same time. It is an open system, which means great flexibility. Formalin-fixed, paraffin-embedded tissue, frozen sections, cytospins, cell smears and the fine needle aspirates can all be processed on the DAKO Autostainer.

Windows 95 software and intuitive graphic operators interface make set up and operation simple. Use pre-programmed protocols or set up your own. You can even customise protocols for each antibody.

The system segregates hazardous from non-hazardous waste to minimise handling and disposal.

For more information about this exciting system, please contact us.

Med-Bio Enterprises Ltd, Phone: 0800 735 599, Fax: 0800 101 441, email: jvincent@medbio.co.nz.

DAKO IMAGEN Respiratory Screen

IMAGEN Respiratory Screen is a rapid Indirect Immunofluorescence test for detection of common respiratory viruses.

IMAGEN Respiratory Screen is intended to aid the rapid diagnosis of common respiratory virus infections. Samples can be efficiently screened, eliminating negative specimens from further investigation, thus reducing the cost of culture. Clinically relevant results are rapidly available, ensuring faster patient management and control of outbreaks.

IMAGEN Respiratory Screen detects SEVEN common respiratory viruses, using highly specific, well characterised, monoclonal antibodies to RSV, Influenza B, Adenovirus and Parainfluenza virus types 1, 2 & 3.

Rapid results with only 30 minute staining time. The kit contains Screening Reagent, Control Reagent, FITC Antibody conjugate, Mounting Fluid and Control Slides.

Med-Bio Enterprises Ltd, Phone: 0800 735 599, Fax: 0800 101 441, email: jvincent@medbio.co.nz.

Enzymic Synthesis of Metabolites Under Investigation

A four year research project is under way at Industrial Research Limited in Wellington to investigate the feasibility of using liver enzymes to make the metabolites used as reference standards in drug testing. Metabolites are the liver's altered version of the foreign substance, created to make the substance more easily excreted from the body.

This is the first time a New Zealand company has looked at the enzymic approach for creating metabolites. Up to now the most laboratory testing has been based on metabolites created through chemical processes.

Scientist David Stevenson says there is a continuing need for metabolites to match new drugs being introduced on to the market each year. The metabolites act as reference standards for laboratories to ensure accurate identification of substances and to calibrate equipment. These materials are needed in small quantities, but sometimes it is too difficult and too expensive to make the metabolites using conventional chemical methods.

"Although we're talking about very small quantities of very high value, one gram of a particular metabolite could be a year's supply for the whole planet," he says. And the value of that gram could be as much as US$750,000.

He says enzymic synthesis, using natural enzymes found in the livers of animals such as sheep, pigs and cattle, could not only reduce the cost of making metabolites, but also produce compounds not accessible by chemical methods.

Six months into the project Dr Stevenson has already produced, on a small scale, a glucuronide metabolite compound which no one has been able to make chemically before. He is also making a one-off glucuronide for HortResearch to test a flavour compound found in fruit and vegetables.

While the primary use for the enzymically produced metabolites will be in "dope" testing of athletes, drug abusers and racehorses, other potential uses include products for medical research such as metabolites of hormones, carcinogens, toxins and pollutants, and for analysis of animal pharmaceutical residues in meat and milk.

Industrial Research Limited's technology transfer partner in the project is New Zealand company, B. Dent Global. a manufacturer and distributor of standards to testing laboratories, who will commercialise any successful research by Dr Stevenson's team.

Dr Stevenson says links with other organisations, including AgResearch and Douglas Pharmaceuticals, have been useful in suggesting possible target compounds for Industrial Research Limited to make, particularly some that could be marketable. Victoria University biochemistry Professors Alan Clark and Bill Jordan have also provided useful advice on sourcing and use of liver enzymes, while local meat processor Taylor Preston Ltd has donated fresh livers for enzyme extraction.

Funding for the project of $400,000 over four years is coming from the Foundation for Research, Science and Technology.

For further information contact David Stevenson, Industrial Research Limited, PO 31-310, Lower Hutt, Phone: 04-569 0000, Fax: 04-566 6004, Email: d.stevenson@irl.cri.nz.

MUREX DIAGNOSTICS NZ

Now **MUREX** introduces a unique range of Molecular Biology assays developed as a result of its partnership with **INNOGENETICS.**

INNO-LiPA offers you a complete range of HLA class 11 typing products based on strip technology for fast typing with high-resolution results.

INNO-LiPA DRB key

- Optimal resolution DRB typing for solid organ transplantation and for donor register typing.

*INNO-LiPA DRB 1*04*

- For the high resolution typing of DRB1*04 alleles.

INNO-LiPA DRB decoder

- For the high resolution typing of DRB alleles.

INNO-LiPA DQB

- For the high resolution typing of DQB1 alleles.

INNO-LiPA DPB

- For the high resolution typing of DPB1 alleles.

Other INNO-LiPA Tests

INNO-LiPA CF2

- For the simultaneous detection of the eight most common cystic fibrosis mutations in Western Europe.

INNO-LiPA Apo E

- For the identification of apolipoprotein E genotypes in fresh or frozen blood samples or brain tissue.

INNO-LiPA Rif. TB

- For the early detection of Mycobacterium tuberculosis and rifampicin resistance.

Available soon

Murex/Innogenetics LiPA HIV-1 RT

- A revolutionary HIV-1 Reverse Transcriptase (RT) monitoring test that simultaneously detects wild-type and HIV mutations associated with the drugs AZT, ddI, ddC and 3TC. Resistance to the drugs occurs as virus mutations develop that may eventually cause the drug, or combination of drugs, to become ineffective against the virus. The Murex/Innogenetics LiPA HIV-1 RT test is the first available rapid assay to measure mutant strains.

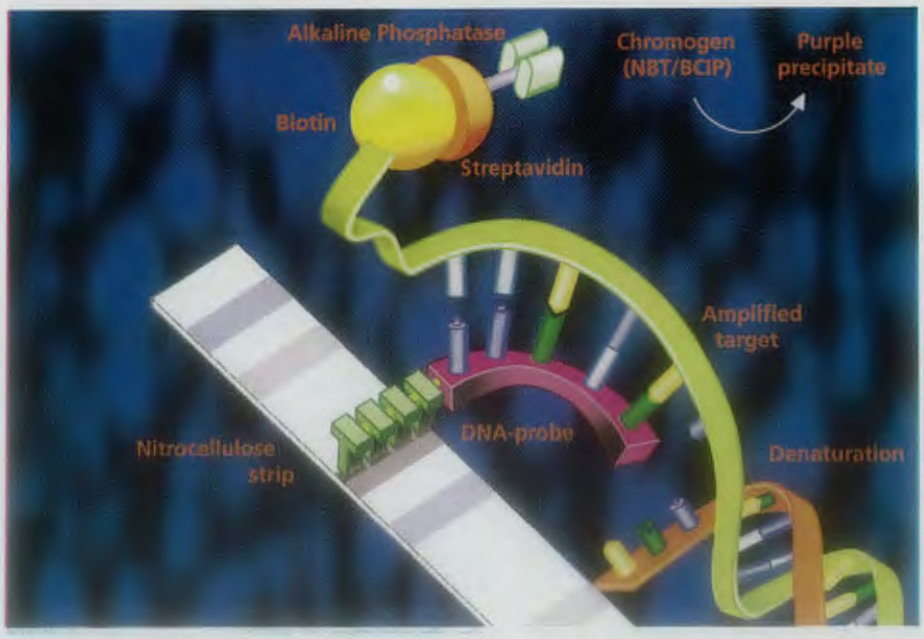
For further information:

Contact Helen Craig at Murex Diagnostics New Zealand,
Phone (09) 276 9970, Fax (09) 276 0704.

murex

The Principle

One sample
V
One amplification reaction
V
One INNO-LiPA strip
V
One temperature for the hybridization and stringent wash
V
Multiprobe result in less than 2 hours after amplification



Strong Points of INNO-LiPA

HIGH RESOLUTION

- Highly specific oligonucleotide probes allow discrimination at allelic level of:

  DRB1: 103/124; DRB3: 4/4; DRB4: 2/3; DRB5: 4/5

  DQB1: 25/26

  DPB1: 58/61

UNIVERSAL

- Only one technique for all HLA typings.

SPECIFIC AND SENSITIVE

- Hybridization reactions allow discrimination at the level of a single mismatch.
- Correct typing can even be done on poor-quality DNA.
- 10µl of amplified product is sufficient.

FAST

- Only 3 reaction steps; results within 2 hours after amplification.
- Suitable for emergency testing.
- Automation enables high-throughput testing.

SIMPLE

- Easy handling procedures
- Ready-to-use strips with all probes immobilized.
- Simultaneous detection of multiple sequence motifs.
- No special lab equipment required.

SAFE

- Non-radioactive.
- No TMAC in the buffers.

EASY INTERPRETATION

- LiPA *Expert* software for result interpretation
- Software suggests which modular kit to use, to obtain high resolution.
- Permanent record of typing result.
- Regular software updates allow re-interpretation for newly described alleles.

Options

- *Auto*-LiPA for standardized processing.
- LiPA-*Scan* for objective result reading.

JIM LE GRICE MEMORIAL AWARD

APPLICATION FORM

Date (Month/Year): .....

Name: .....

Contact Address: .....

.....

.....

.....

Full time students, please complete Section A.

QTA, Staff Technologists, please complete Sections B, C, D.

A. Which institution are you attending as a full time student? .....

Signature: .....

B. What year did you gain your qualification? .....

Signature of applicant: .....

C. I declare that the applicant has total New Zealand work experience of less than 5 years since qualification.

Signature: .....
(To be verified by Charge Technologist)

D. Please provide a brief outline (abstract) of the paper or poster you will be presenting at the Annual Scientific Meeting.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Send your completed application to the NZIMLS Executive Officer, PO Box 3270, Christchurch to be received no later than 5pm, 15 June 1997.

NZIMLS Continuing Education

Special Interest Groups

Transfusion Science

Special Interest Group

Co-convenors: Sue Baird, Invercargill Hospital; Geoff Herd, Whangarei Hospital
Members: Christine van Tilburg, Auckland Regional Blood Service; Ray Scott, Auckland Regional Blood Service; Holly Perry, Auckland Regional Blood Service; Simon Benson, Middlemore Hospital; Andrew Mills, Waikato Regional Blood Service; Sheryl Khull, Palmerston North Hospital; Diane Whitehead, Christchurch Hospital; Suzanne Williams, Dunedin Hospital; Les Milligan, Dunedin Hospital

Membership of TSSIG

We are delighted to announce some changes and additions to the membership of the Transfusion Science Special Interest Group:
New Co-Convenors:

Sue Baird from Invercargill, and Geoff Herd from Whangarei. Between them we think they have got the country covered!

We also have some additional new members:

Simon Benson, Middlemore Hospital; Raewyn Cameron, Rotorua Hospital; Debbie Mason, Auckland Regional; Les Milligan, Dunedin Hospital; Tony Morgan, Napier Hospital; Holly Perry, Auckland Regional Blood Service.

With all the changes we are anticipating in the blood transfusion sector in the coming months, we expect to have lots of new challenges for all of us. This new expanded group, comprising a range of experiences and areas of expertise, as well as size and location of workplace, should serve us all well in facing these challenges.

1997 N.I.C.E. Weekend

This year the NICE Weekend was held at Wairakei Resort Hotel on 11-13 April. The weekend was very well attended, with 51 participants and a total of 73 attendees. The range of topics for presentation was very wide – the abstracts of all the presentations are reproduced below.

Several of the presentations were Highly Commended: Iris Lee – "Calling All Nuns"; Raewyn Cameron –"Donor Recruitment: Is It Us or Them?"; Judy Wong - "The Horrors of Cell 3"; Faye Martin – "How Far Should We Go?"

The winner of the Abbott award for the best presentation was Gerri Jones from Waikato Blood Centre, with her presentation entitled "pH Trials".

NICE Abstracts

Wishkott-Aldrich – A Success Story

Christine Van Tilburg, Auckland Regional Blood Services, Auckland Hospital

Cord Blood Cell transplantation has given new hope for some paediatric patients. A brief case history of a child with Wishkott-Aldrich Syndrome.

The Iron Man Challenge

Diane Matheson, Transfusion Medicine, Rotorua Hospital

Our efforts to improve the treatment regime of a local haemochromatosis patient.

Things that Pop Up in the Night

Lola Prikkel, Blood Bank, Auckland Hospital

Presentation of an "Out of Towner" at Auckland Starship Hospital. A clinical presentation. Progress and treatment of a child with an immunodeficiency syndrome transmitted as an X-linked recessive trait.

Low haemoglobin? Ring the Pharmacy

Grant Tunbridge, Transfusion Medicine, Wanganui Hospital

A look at erythropoietin as an alternative to transfusion, and a case presentation.

Auto-ant(e) natal

Cheryl Mansell, Blood Bank, Hamilton Hospital

A case study of an antenatal patient who showed detectable autoantibody during pregnancy.

Where Have All the Donors Gone?

Claire Robson, Blood Bank, Hutt Hospital

A brief discussion of some of the problems facing a small transfusion centre.

Donor Recruitment – Is it us or them?

Raewyn Cameron, Transfusion Medicine, Rotorua Hospital

A look at a local open day and trends in donor recruitment since 1991.

Calling All Nuns

Iris Lee, The Blood Centre, Wellington Hospital

An account of the impact of the introduction of the extended list of HTLV-1 endemic areas and the guidelines for blood donation. Presented are the steps taken by the Wellington Blood Service to address some of the problems and the continuing impact of the guidelines.

If you want a strong drink – don't ask for a weak teabag? NBTSAC?

Les Milligan, Transfusion Medicine, Dunedin Hospital

The Minister of Health appoints and establishes the National Blood Transfusion Service Advisory Committee to advise the Ministry of Health on Blood Transfusion Service matters. The functions of this

group will be outlined with some positive suggestions on how we can form a better practical working relationship with this group.

Workers Unite

David Fisher, Laboratory, Masterton Hospital
Some observations on the recent industrial unrest in the industry.

Clinical Update in Transfusion Medicine

Johanne Milbank, Transfusion Medicine Department, Wanganui Hospital
A brief overview of this course run by the University of Adelaide last year.

Blood Banking Without Our Own Donor Service

Jane Burke, Blood Bank, Whakatane Hospital
The trials and tribulations of running a Blood Bank using an independent donor service.

Where To Now?

Walter Wilson, NZ Blood Transfusion Trust
A national blood transfusion service is likely to be imminent. A view of the opportunities that a national service can bring us for better use of our national blood resource.

Your Professional Society

Shirley Gainsford, President NZIMLS, Valley Diagnostic Laboratory, Lower Hutt
An overview of what the NZIMLS does, including current issues such as Fellowship.

Anti-Fy^a plus What?

Max Love, Blood Bank, Hutt Hospital
A brief report of an interesting antibody identification on a sample referred from our lab for investigation of a possible antibody to a low incidence antigen.

Problematic Pregnant Patient

Robert Coleman, Auckland Regional Blood Services, Auckland Hospital
A routine antibody screen on the blood sample of a young woman early in her first pregnancy revealed that her serum contained an antibody directed against a high frequency antigen. Results of the subsequent investigations will be discussed.

The Private Grief of a Public Antigen

Kathy Swainston, Blood Bank, Waikato Hospital
A case study of a patient lacking a public antigen.

Cluedo

Tony Morgan, Immunohaematology Department, Napier Hospital
The object is to solve by means of elimination and deduction, the problem of the mysterious appearance of anti-D, the antibody which was found in the body of Mrs F.

- Was it Napier or Hastings Hospital at fault?
- Was it an incorrectly grouped unit?

The Elusive Antibody

Bev Nickle, Waikato PathLab,Hamilton
An antibody screen on Mrs Buckett (pronounced Boo-kay) was positive and identified by the Reference Laboratory as anti-c+E.

One month later another specimen was received and divided to send a portion directly to the Reference Laboratory. We were unable to detect the antibody but the Reference Laboratory detected and identified the antibody ...

"AB" or Not "AB" - That is the question

Christine Martin, Southern Community Laboratories, Christchurch
Mixed field agglutination resulting from the passage of red cells from the mother to the fetus can pose problems in determining the correct ABO and D groups for newborn babies. Two cases, using the DiaMed system, will be presented.

The Horrors of Cell 3

Judy Wong, Blood Bank, Waikato Hospital
Health Waikato blood bank laboratory had experienced an unusually high number of patients with positive antibody screens. Further investigation of a positive antibody screen requires additional work-up and samples, which can delay the request for blood required for transfusion. A specific antibody was not identified but the same reactions were obtained in each case. To resolve the matter, a bit of investigative work was required to solve the "mystery".

New Zealand Cell Typing Project

Debbie Mason, Auckland Regional Blood Services, Auckland Hospital
Jeanette Corley, CSL BioSciences
A combined presentation outlining the logistics of setting up and managing the New Zealand Cell Typing Project, and an update on what has been achieved so far. A review of blood group frequencies in the Auckland blood donor population found during the project's duration will also be discussed and compared to statistics previously reported in textbooks.

Autoimmune Haemolytic Anaemia in Children

Geoff Herd, Diagnostic Northland, Whangarei Hospital
Two cases of autoimmune haemolytic anaemia (AIHA) in children are presented. The first case, a six-week-old child developed immune haemolysis which resolved relatively quickly. In contrast, the second case has followed a protracted course requiring many red cell transfusions and chemotherapy. The two cases demonstrate the most common manifestations of childhood AIHA: the former, a transient self-limiting illness and the latter following a chronic course as described in the literature. These cases present a challenge for the red cell serology laboratory because of a need to establish the maximum amount of information from extremely small blood samples. An additional level of difficulty included the finding of low avidity antibodies which may give conflicting results in vitro serological tests.

To Irradiate or Not to Irradiate?

Dr Bart Baker, Transfusion Medicine, Palmerston North Hospital
Transfusion-associated graft-versus-host disease (TA-GVHD) is a very rare but usually fatal complication of blood transfusion characterised by fever, skin rash, hepatic dysfunction, diarrhoea and bone marrow aplasia which occur within 2 - 30 days of transfusion. TA-GVHD is mediated by donor T-lymphocytes engraving in the transfusion recipient and occurs more commonly (but not exclusively) in immunosuppressed individuals. Irradiation of cellular blood components prior to transfusion with a minimum of 25 Gy reliably prevents this complication but the practice of irradiating blood components varies in this country as well as in the United States. Patients who may be at particular risk for TA-GVHD include patients with congenital immunodeficiency, bone marrow or stem cell transplant recipients, intrauterine transfusion recipients, patients receiving cellular products from a related donor, neonates, Hodgkin's Disease patients and those receiving certain chemotherapeutic agents.

Poster – Autologous Blood Transfusion

Grant Bush, MedLab BOP, Tauranga

No abstract available.

How Far Should We Go?

Faye Martin, Immunohaematology, Hastings Hospital

A discussion on one surgeon's desire to use autologous blood.

What are the patient's rights? What are the donor attendants' rights? How do we enforce these rights?

Poster -- Is Screening by Enzyme Really Necessary?

Stacey Hurley, MedLab BOP, Tauranga

No abstract available.

The Winds of Change

Elizabeth Fisher, Laboratory, Masterton Hospital

A small laboratory reviews its techniques in Blood Bank.

The Hitch-Hikers Guide to Monoclonal Antibodies

Julia Davison, Auckland Regional Blood Services, Auckland Hospital

1) What are they?
2) How useful are they?
3) What do they look like?
4) How do we go about producing some?
5) What is the meaning of Life, the Universe and Everything?

The answer to the first four will be revealed and number 5 we know is 42!

Man or Mouse?

Janine Gundersen, Transfusion Medicine, Palmerston North Hospital

A review of a recent phenotyping survey presented by the Royal College of Pathologists of Australasia (RCPA). This survey shows some interesting results with regard to the detection of e antigen by a variety of commercial antisera. An outline of the survey exercise and the corresponding results will be covered, and some positive and negative aspects of the survey will be discussed.

Should Blood Donors be screened for HIV 1 p24 Antigen? – A View from Africa

Dr Robert Crookes, Auckland Regional Blood Services, Auckland Hospital

The South African Blood Transfusion Service has been screening blood donors for antibodies to HIV since 1985. The seroprevalence of HIV I in certain regions has increased to 5.2 %. Because of the increased risk of HIV transmission in the "window period", HIV I p24 antigen testing was introduced in March 1996. Results show the detection of HIV I p24 antigen in HIV antibody negative blood donor units.

Is HIV 1 p24 antigen testing relevant to the screening of blood donors in regions of low seroprevalence, such as New Zealand?

Poster – Screening Blood Donors for Chagas' Disease

Diane Whitehead, Transfusion Medicine, Christchurch

We've seen their postcards and slides of South America but we all want our blood donors back.

A donor screening service is being offered from Transfusion Medicine, Canterbury Health Laboratories. Please send labelled serum or plasma samples.

Where We're at With MUD

Kathie Figgins, Auckland Regional Blood Services, Auckland Hospital

A look at national, international, solid organ and bone marrow statistics.

A selection of interesting transplant data will be presented from:

ANZDATA Registry	(Australia & NZ)
Clinical Transplants	(Terasaki USA)
Office of Transplant Coordination	(Auckland NZ)
The NZ Bone Marrow Donor Registry	(Auckland NZ)

High Resolution HLA Typing in MUDs

Holly Perry, Auckland Regional Blood Services, Auckland Hospital

For unrelated bone marrow transplantation, a very high degree of HLA matching between patient and donor is required for a successful outcome.

It is now possible to subtype HLA genes; for example, DR4 has now been further differentiated into 22 alleles. Matched unrelated donors are now being DNA typed at this level.

We are now using two different technologies to subtype these patients and donors.

To date, we have high resolution typed 55 individuals.

An overview of the work will be presented.

Open Your Arms

Maurice Roberts, Auckland Regional Blood Services, Auckland Hospital

Polymorphisms of the HLA class I and class II loci have been traditionally detected by serology – the microlymphocytotoxicity method. Serology is a rapid method of tissue typing. This method is often hindered due to antibody crossreactivity and a lack of useful typing reagents, particularly for new, DNA-defined specificities.

The DNA-based HLA class II typing method HLA-SSP has been used successfully in our laboratory to improve the quality of HLA typing. DNA-based techniques for class I typing were a feature of the 12th International Histocompatibility Workshop (12IHW). Gene sequence, PCR-SSP and PCR-SSO methods were reported.

The ARMS-PCR method is suitable for tissue typing HLA class I by PCR-SSP. To participate in 12IHW we studied 50 Maori random donors for HLA class I typing using the ARMS-PCR method, and a subset of the population were tissue typed by ARMS-PCR for HLA-A*02 subtyping.

The method for ARMS-PCR and the HLA allelic frequency data will be reported.

Glossary of DNA tissue typing methods cited:

ARMS-PCR & PCR-SSP	Amplification Refractory Mutation System Polymerase Chain Reaction Sequence Specific Primer class I tissue typing
HLA-SSP	HLA Sequence Specific Primer class II tissue typing
PCR-SSO	Polymerase Chain Reaction Sequence Specific Oligonucleotide tissue typing for HLA antigens.

Unique Identity

Ray Scott, Auckland Regional Blood Services, Auckland Hospital

The requirement to ensure that each and every donation of blood collected in New Zealand is uniquely identified remains tenuous with the current Codabar donation number system. Episodes of duplicate numbered plasma donations have occurred intermittently over recent years. The proposed adoption of ISBT Code 128 will provide an infinitely unique identifier for donations, but will require coordination and funding for implementation. This presentation describes ISBT 128 and the implications associated with implementation.

It All Depends Where You Look

Simon Benson, Blood Bank, Middlemore Hospital

The days of laboriously searching through piles of dusty books and Journals for information have all but long gone.

In the 1990s it is now possible to harness a vast global network, literally a spiders web, of computers via the Internet.

At the push of a button access is available to an almost infinite treasure trove of information, all without ever having to leave your PC...

Delving into cyberspace for a wander along the "information superhighway" the following is a selection of interesting (or just plain bizarre) websites associated with the query "blood?".

A Common Blood Information Management System

Steve Brine, CSC Healthcare Systems, Wellington

A presentation and discussion of the advantages to the New Zealand blood transfusion service in adopting a common information management tool across the nation.

The day it snowed in Auckland in November

Leonie Robinson, Auckland Regional Blood Services, Auckland Hospital

A serum sample needs to be sent to Melbourne for confirmatory testing. Stores organises the details, nothing unusual about it – just a routine shipment. We were not aware how exciting the day was to become .....

Start Reading the News NEW YORK! NEW ZEALAND!

Carole Watson, Auckland Regional Blood Services, Auckland Hospital

On the 28th September 1996 a call from the Consultant Paediatric Oncologist asking me to make arrangements to take delivery of an unrelated mismatched cord blood from the New York Cord Bank. It was for a young child with Wishkott-Aldrich Syndrome. The cord blood was due to arrive in two days time! This was a first for the ARBS, and New Zealand. This brief talk will tell of the arrangements made, the process of preparing the cord blood for infusion, and the benefit for us to see first hand the Liquid Nitrogen Dry Shipper we were thinking of buying.

Snowed Under

Helen Muir, Blood Bank, Dunedin Hospital

An account of a very busy winter's day at the Dunedin Transfusion Medicine Department.

Operation Calamity

Donna Claerhout, Blood Bank, Waikato Hospital

A mock disaster can be an effective way to test a hospital's disaster plan. The Blood Bank at Waikato Hospital re-evaluated and improved their Operation Calamity procedures after the "aeroplane crash" in March.

Increased Plasma Yield from Platelet Production

Andrew Mills, Waikato Regional Blood Centre, Hamilton

Following a presentation from Western Australia Red Cross Blood Transfusion Service at the ASBT in Adelaide we decided to trial their method. Preliminary data so far is very promising.

pH Trials

Gerri Jones, Waikato Regional Blood Centre, Hamilton

A comparative study to compare the effect of sampling technique on platelet concentrate pH.

Detection of Bacteria in Resuspended Red Cell Units

Jennifer Janz, Waikato Regional Blood Centre, Hamilton

A study comparing two methods of culturing red cell units: An automated blood culture system and manual sampling of units onto blood agar plates. Four different strains of bacteria were included in the study, including *Yersinia enterocolitica.*

Yersinia Research – Progress Report

Chris Kendrick, Dept of Microbiology and Genetics, Massey University

A report on the progress of research being conducted at Massey University into the development of an assay to detect units of donated blood with the potential for transfusion related septicaemia and endotoxic shock caused by *Yersinia enterocolitica.*

The Quality of Life

Karen Webber, Auckland Regional Blood Services, Auckland Hospital

"Quality", an invasive mystery, the origins of which can begin to be unravelled through the Introduction to Quality Healthcare Course at AIT.

Inconsistent anti-HBs Results

Jill Faulkner, Auckland Regional Blood Services, Auckland Hospital

Anti-HBs results are inconsistent from participants of the HAPS (Hepatitis Assay Proficiency Survey).

Is this inconsistency significant with regard to:

the need for repeat vaccination?

the selection of donation plasma for manufacture of Hepatitis 13 Immunoglobulin at CSL?

A Quality Control Programme for Plasmapheresis Machines

Belinda Curtis, Auckland Regional Blood Services, Auckland Hospital

Plasma collected by plasmapheresis machines has varying degrees of cellular contamination depending on the machine type and the standard at which the machine is performing.

Ten samples were collected from each of eight plasmapheresis machines used at the Auckland Regional Blood Centre. Various methods of sampling were assessed with the use of the sterile docker being the most feasible. These samples were manually processed to assess the levels of cellular contamination. The data derived from this study is being used to establish the Q.C. protocols for conformance to MOH Standards 8.4.1.

Spotting the Clots

Lorraine Rimmer, Auckland Regional Blood Services, Auckland Hospital

This is an overview of how incident reporting has achieved quality improvements through Standard Operating Practice (SOP) changes. In October 1996, a series of reported incidents from our Donor Accreditation (DA) Laboratory were investigated. The problem was clots in some of the donors' EDTA blood tubes, that is the sample used for blood grouping. On investigation it was found that this was not a new problem. Occasionally the clot in the EDTA tube was undetected by DA staff and led to blockages in the Quatro Autogrouper which resulted in rework and extra costs. Following the investigation it was found that all reported incidents were from "slow bleeds" i.e. donations which took greater than 12 minutes. It became apparent that donor collectors (nurses) informed Blood Products staff of "slow bleeds" by writing the collection time on the bag but did not inform DA staff. Well isn't that amazing that no one had communicated the need for this vital information to be passed along the process! A consensus decision was made and the nurses started marking the EDTA tubes of slow bleeds with a black spot. This means their internal customers, DA could start "spotting the clots".

Cooked in the Boot

Margaret Dickinson, Auckland Regional Blood Services, Auckland Hospital

Once upon a time ARBS cars were air conditioned. The new CHE policy has moved to the use of lease vehicles. These are not air conditioned. Drivers are reportedly "cooking"; what is happening to our blood traditionally returning from Mobile Collection Sites in open crates. The QC laboratory has been using Escort Data Loggers to track temperatures in the boots of vehicles, at collection sites and of blood packs during transportation.

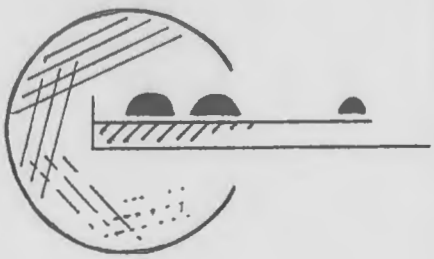
With car boot temperatures peaking at over 40°C in summer and falling well below 20°C in winter, the blood units are failing to remain within the optimal temperature range, 20 to 22°C, prior to processing.

Abbott prize winner Gerri Jones receiving her prize from Craig Burnet.

Microbiology

Special Interest Group

Convenor: Jan Deroles - Main
Contact Address: Medical Diagnostics
Palmerston North



This year a successful seminar was held with 82 registrants. 14 papers were presented with time for discussion and questions.

Aeromonas virulence Factors

Andrea Hunt, Medlab Central

This paper was a review of toxin types associated with various Aeromonas spp. Aeromonas hydrophilia was most associated. There is association between toxin types and biochemical markers.

Case Study

Ruby Yee, Hutt Valley Health

A child with previous history of Rheumatic Fever, presented with weight loss, raised ALP, low haemoglobin and raised ESR.

Blood cultures were taken.

Bactec 730 showed a low positive index in the ANO_2 bottle. The O_2 bottle remained within range. Gram stain showed no bacteria. After 4 days, a fine growth appeared on chocolate CO_2 plate. It took 10 days to show discreet colonies. The organism was later identified as Actinobacillus actinomyceticuomitans.

Ruby presented this case study as an example of need for extended incubation.

Erastalis tenax (rat tailed maggot)

Marc G Smith, Medical Laboratory Wellington

Erastalis tenax (rat tailed maggot) is uniquely identifiable by its telescopic respiratory tube (tail). It can be a cause of accidental intestinal myiasis. Symptoms include: nausea, abdominal pain, diarrhoea, dysentery and nervousness. Recommended treatment is with caster oil. Wellington has had three recent cases. A small number of specimens have been received in other regions, including Auckland and Dunedin.

Anaerobes

This paper was a review of the new improved methods now being carried out at Waikato Hospital, that have been undertaken over 20 months. Improvements include improved collection criteria, quality specimens, and pre-reduced media. This regime has significantly increased positive rate and numbers of fastidious anaerobes. Sensitivities are now performed using E test strips on specific request.

MRSA

David Riley, Diagnostic Lab Auckland

6% of all Diagnostic Laboratories Staph aureus in 1996 were MRSA. There were 60 cases (17%) with high level resistance (>64mg/L)

Most of these isolates were from wound swabs and only 5% were from MRSA screening.

David suggested that the implications of these results are:

- increased number of swabs for testing with no extra funding
- high cost of monitoring

In Europe, special precautions have been dropped in favour of universal precautions. The question was asked when are we going to follow?

Streptococcus pneumoniae

David Riley, Diagnostic Laboratory

David presented a review of the resistance patterns of this organism. The highest resistance rates appear in age group 20-55 years and applies to all common antibiotics.

Age association may relate to previous courses or antibiotics.

Two Clinically "Not Considered" Isolates

Anne Paterson, Lakeland Health

Two cases of significant fungal isolates were presented. Fungal infection was not initially considered in either case.

1. Scalp infection had several bacterial diagnoses and "no growth" wound swabs. Tissue was received and given prolonged incubation. Trichophyton verrucosum infection was confirmed by Microbiology and Histology.
2. Routine Pleural Aspirate broth enrichment grew Cryptococcus neoformans. All repeat specimens also grew. Pleural aspirate and serum tested negative for Cryptococcal antigen. The patient had had a heart transplant and was immunocompromised with several pathological conditions. At surgery massive middle lung destruction due to infection.

Both patients made good recovery on appropriate therapy.

NZIMLS: Your Professional Society

Shirley Gainsford, Valley Diagnostic

The New Zealand Institute of Medical Laboratory Science is the professional society for clinical laboratory workers.

It is operated through the elected Council, the Special Interest Groups and the Executive Office.

The activities of the institute are:

- Examinations including Qualified Technical Assistant, Specialist and Fellowship.
- Continuing Education, namely seminars and the Annual Scientific Meeting.
- Policy Advice

Clinical laboratory workers should join their professional society to receive continuing education, be considered for NZIMLS prizes, publish articles in their Journal and to support the activities their society provides on their behalf.

A bit of Agro

Jan Deroles-Main, Medlab Central

Jan presented two cases of Agrobactium radiobacter from two patients in remission. The two cases were in hospital at the same time and may have been nosocomial. No other cases have been identified.

This unusual isolate grows well on Blood Agar/Mac Conkey. It is usually a contaminant but has been associated with plastic material (intravenous and peritoneal catheters) and rarely septicaemia. It has an unpredictable antibiogram.

Bordetella parapertussis

Philipa Skellen, Medlab Auckland

A case report on a 5-month-old female clinically diagnosed with possible pertussis. Bordetella parapertussis was isolated. Identification and the significance of this pathogen was reviewed.

Streptococcus agalactiae - an observation

Bruce Dove, Diagnostic Laboratory Auckland

At Diagnostic Laboratory it is not uncommon to isolate group B Streptococcus from urine specimens, especially when compared with other Gram positive bacteria. The "Manual of Clinical Microbiology" (ASM) does not include UTIs as part of adults Group B infections and the "Principles and Practices of Infectious Diseases" (Mandell) has listed it as an uncommon manifestation. For 1996, Group B Streptococcus (3.47%) was the fifth most common urinary isolate at Diagnostic following: E.coli (70.92%), Proteins mirabilis (4.51%), Staphylococcus saprophyticus (4.47%) and Group D Streptococcus (4.25%).

Group B Streptococcus isolation rates have remained fairly constant, although at times equalling Group D Streptococcus isolation rates.

Features of Group B Streptococcus UTIs include, most commonly occurring in middle-aged women in the community, almost all have an underlying disease and despite appropriate treatment, the clinical outcome is poor in approximately 1/5th of cases.

TB or Not TB

Alison Idemia, Health Waikato

A case study was presented of a healthy male shearer who presented with severe back pain and night sweats. CT scans showed destruction of L4 vertebrae. He had recently been to Italy and the pathogen was thought to be TB.

Eventually Brucelia mellitensis grew. As there is no Brucella in New Zealand cattle, it is thought that he contracted this organism while in Italy.

There were 9 Brucella cases reported last year, but this was the only one of these that was culture positive.

Yersinia enterocolitica serotype 09 cross reacts with Brucella Mellitensis and must therefore be excluded before Brucella diagnosis is made.

A fly in the eye

Kay Stockman, Waikato Health

A sixteen-year-old male student had a fly land directly into his eye. Mobile specks were later removed and sent to laboratory for identification, The hooked parasites were just visible to the naked eye and identified as Oestrus ovis, first stage larvae. (Sheep nasal bot fly). These larvae normally migrate up sheep nasal passages into sinus and develop into 3cm long larvae.

Humans can be short term host of eyes, but the parasite cannot develop further in this locality.

A female student in the same class, developed similar condition. Treatment was with cocaine washes to paralyse parasite and remove from site.

Problem – Occupational Overuse Syndrome

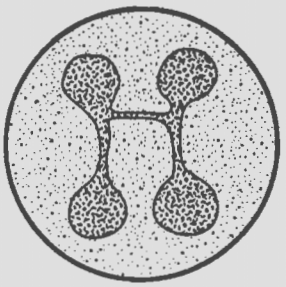
Steve Soufflot, Medlab Hamilton

Question – Occupational Overuse Syndrome (OOS). We have had a cluster of cases. Are other labs having problems, and if so, what are they doing about it?

- A number of labs have had occasional sporadic cases. Diagnostic (Auckland) have also had a significant number of cases.
- Seems to be associated with microscopy, but other factors appear to play a role, eg. reading large volumes of plates.
- Approaches include using physio and occupation therapists. Early intervention/prevention important.
- Some labs have used new ergonomically designed microscopes. Also wrist/arm support, large knobs on microscopes, tilting microscopes, use of micropauses and exercises, and rotation of staff.

Haematology

Special Interest Group



HSIG have started up a programme called 'Journal Based Learning-Questionnaire,' this concept has been taken from the programme that is run in the United Kingdom by the British Institute of Medical Laboratory Science. It has been started up as to hopefully enable some of the smaller laboratories/part-timers in particular a chance to make up more MOLS points by an external means of education, the questionnaire shall be published in each Journal, and also sent to each regional HSIG rep.

Credits should be accumulated under the 'Self Assessment Programmes' which is worth 50 credits per paper.

It is up to each technologist participating to find the article, read it through, then answer the questionnaire. There is no external marking involved, it is up to each technologist to check their answers published in the next Journal, as this is a learning programme.

Each technologist may need to keep a record/document that they have attempted the questionnaire for future records, i.e verification of MOLS points.

The Journal article should be in your Medical Library but if there is any problems in obtaining a copy please do not hesitate to contact Pip Sarcich, at the Cell Marker Laboratory – Molecular Medicine, 3rd Floor, Pathology Building, University of Auckland, Private Bag 92019, Auckland. Contact telephone number is (09) 373 7540, or fax (09) 373 7492. Please note there will be a small fee involved, i.e. photocopying and postage fee.

(For each article this contact name and number will change.)

Journal Based Learning – Questionnaire

The Pathology of the Chronic Lymphoid Leukaemias
Kroft SH, Finn WG, Peterson LC. *Blood Reviews* 1995; 9:234-250
Please circle your choice of correct answer.

1. The Leukaemic Phase of both B-cell and T-cell type malignant lymphoma's are excluded from the classification. TRUE FALSE
2. In B-cell Chronic Lymphoid Leukaemia (B-CLL), monoclonality may be determined by light chain restriction or clonal immunoglobulin gene rearrangement. TRUE FALSE
3. There are two staging systems most commonly used, the Rai and Binel classification. The Rai classification has been simplified to 5 stages and 3 prognostic groups by correlation the medial survival time and utilizing the presence or absence of organ infiltration alone. TRUE FALSE
4. The FAB co-operation group propose that a diagnosis of B-CLL can be made on the existence of a persistent lymphocytosis of >10 $X10^9/1$. If the lymphocytosis is between 5-10 x $10^9/1$ additional studies are required for diagnosis. TRUE FALSE
5. Prolymphocytes may be present in CLL but constituting less than 10% of lymphoid population TRUE FALSE
6. B-CLL express CD19, CD20 and CD24. Possess strong surface immunoglobulin with light chain restriction (x or λ). TRUE FALSE
7. Around 15% of B-CLL patients develop autoimmune haemolytic anemia, but less commonly immune thrombocytopenia and granulocytopenia. TRUE FALSE
8. Richter's syndrome occurs in more than 10% of cases of B-CLL and is characterized by the development of a rapidly progressive lymphoma. TRUE FALSE
9. All cases of Prolymphocytic Leukaemia (PLL) are of B-cell origin. TRUE FALSE
10. B-PLL is characterised by a high white cell count, splenomegaly and lymphadenopathy. More than 55% of the circulation lymphoid cells are prolymphocytes. TRUE FALSE
11. B-PLL differs immunophenotypically from B-CLL by the expression of strong (bright) surface immunoglobulin and almost always the expression of CD5. TRUE FALSE
12. The most frequent cytogenetic abnormality in B-PLL is 14q- which is seen in about 50% of patients. TRUE FALSE
13. Majority of patients with CLL with increased prolymphocytes 11-54% (CLL/PL), maintain a stable percentage of prolymphocytes, rather than the progressive accumulation as seen in prolymphocytoid transformation of B-CLL. TRUE FALSE
14. Hairy-cell leukaemia (HCL) typically presents with splenomegaly, pancytopenia and lymphadenopathy Monocytopenia is nearly always a constant feature. TRUE FALSE
15. Cytochemically the demonstration of tartrate resistant acid phosphatase is a useful diagnostic procedure as it is 99% sensitive for HCL, but not so specific with a large group of other neoplasms also showing positive staining. TRUE FALSE
16. The HCL variant has morphological features intermediate between hairy-cells and prolymphocytes. If differs from HCL by the presence of a high white cell count, lack of monocytopenia and a membrane phenotype closer to B-PLL than to HCL. TRUE FALSE
17. Splenic lymphoma with circulation villous lymphocytes is characterized by a cell about the size of a prolymphocyte with condensed chromatin, often a small nucleolus, and short thin cytoplasmic projections which may be polar in distribution. The cells are positive for CD19, CD20, CD24, CD25 and TRAP (Tartrate-resistant acid phosphatase). TRUE FALSE
18. The leukaemic phase of both small cleaved-cell lymphoma (SCCL) and mantle-cell lymphoma (MCL) can be confused morphologically with B-CLL as they consist of relatively mature-appearing small lymphocytes. SCCL has small lymphocytes with deeply cleaved-nuclei and MCL has cells of intermediate size with nuclei showing clefts and indentations. Both express strong surface immunoglobulin. TRUE FALSE
19. T-PLL cells express mature T-cell surface antigens (CD3, CD5 and CD7) and are usually of T-helper phenotype (CD8+). TRUE FALSE
20. Large granular lymphocyte's (LGLs) are large

lymphocytes with abundant pale cytoplasm and scattered coarse azurophilic cytoplasmic granules. Most of these cells are either true nature killers (NK) cells or CD 3+ T cells that may possess some NK activity. These cells also carry Fc receptors which is the surface marker CD16. TRUE FALSE

21. Mycosis fungoides is a primary T-cell lymphoma of the skin. A small percentage of these patients develop Sezary syndrome which is characterised by generalised erythroderma, lymphadenopathy and peripheral blood lymphocytosis. TRUE FALSE
22. There is a significant overlap in clinical presentation between Mycosis fungoides/Sezary syndrome(MF/SS) and Adult T-cell leukaemia/lymphoma syndrome (ATLL). Morphologically they both present with circulating lymphocytes exhibiting deep nuclear clefts and convolutions but Sezary cells generally have a more folded and bizarre appearance than the cells of ATLL. TRUE FALSE
23. Sezary syndrome cells mark exclusively as T-helper cells. The deletion of certain pan-T restricted antigens (CD7 being the most common) occurs with the progression of MF/SS in a high percentage of cases. TRUE FALSE

Chronic Lymphoid Leukaemia's

Here is a table of results with typical findings of Chronic Lymphoid Leukaemias, with the Journal article and any other references that you may have you will be able to provide a diagnosis.

Sex/Age	F/62	M/42	M/74
WCC (x 10^9/1)	190	4.2	85
Spleen	Large	Large	Palpable
L.N	Enlarged	Normal	Enlarged
CD19/CD20	90%	90%	80%
CD22	90%	86%	3%
FMC7	90%	88%	1%
CD5	8%	10%	93%
CD2	10%	9%	8%
CD25	Neg	90%	Neg
CD11c	Neg	84%	5%
Sig	Strong	Strong	Weak
Diagnosis			

References: Leukaemia Diagnosis a Guide to the FAB Classification. Bain Barbara J. Gower Medical Publishing 1990, 89-105.

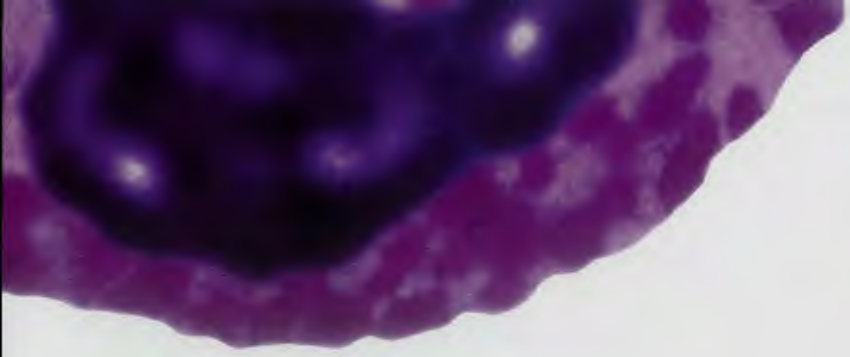
New Zealand Institute of Medical Laboratory Science Conference

Date: Thursday 28 August 1997

Venue: The Wellington Town Hall

Bone Marrow and Peripheral Blood Stem Cell Transplantation

- Introduction
  Overview of Bone Marrow Transplantation — Dr John Carter (Haematologist, Wellington)
- Tissue Typing
  HLA – Transplantation — John Dagger (Tissue Typing Lab, Wellington)
  Molecular Methods — Zlatibor Velickovic (Wellington School of Medicine)
- Bone Marrow Donor Registry — Dr John Carter
- Microbiology of BM Transplantation
  Serology — Jane Humble (Serology Lab, Wellington)
  Infectious Complications — Dr Michael Humble (Microbiologist, Wellington)
- Stem Cells
  Peripheral Blood Stem Cell Overview — Dr Ken Romeril (Haematologist, Wellington)
  CD34 Enumeration — Jan Nelson (Haematology, Auckland)
- Stem Cell Processing
  Collection Techniques — Joanna Delahunty (Staff Nurse, Ward 1, Wellington)
  Manipulation and Freezing Techniques — Glennis White (Haematology, Wellington)
- Nursing a Transplant Patient — Leonie (Charge Nurse, Ward 1, Wellington)
- Blood Product Support — Dr Chris Hogan/Robyn Mardell (Immunohaematology, Wellington)
- A Patient's Experience — Transplant patient
- Complications in BM Transplantation
  Graft verse Host Disease (Histology) — Dr Bert Hill (Histologist, Wellington)
  Cyclosporin Measurement (Biochemistry) — Russell Cook (Biochemistry, Wellington)
- New Frontiers in BM/Stem Cell Transplantation
  Multi Drug Resistance — Phil Wakem (Haematology, Wellington)
  Minimal Residual Disease — Peter Hollings (Cytogenetics, Wellington)
  Cancer Vaccines/Transplantations — Dr David Ritchie (Mallaghan Institute, Wellington)
- Concluding Remarks — Dr Ken Romeril



AVAILABLE NOW

CELL-DYN® 4000

WHITE CELL ANALYSIS

- Five-dimensional cell-by-cell analysis
- Expanded reportable range from 0 to 250,000 cells/µL
- Indication of white blood cell viability

DIFFERENTIAL ANALYSIS

- Increased sensitivity of abnormal cell detection
- Fluorescent DNA staining of nucleated red blood cells
- Reportable differential up to 36 hours post-draw

RETICULOCYTE ANALYSIS

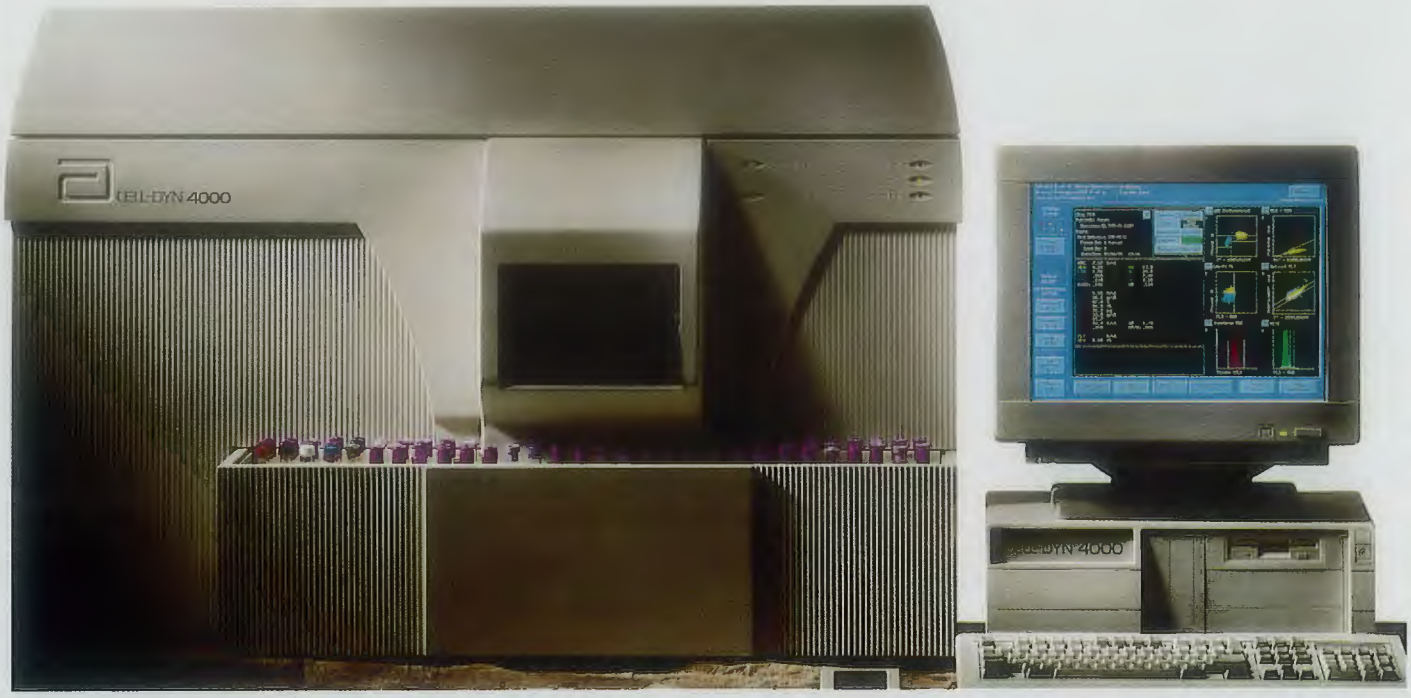
- Fully automated random access measurement
- Rapid patented fluorescent RNA staining
- Sensitivity applicable for critical therapy monitoring

RED CELL ANALYSIS

- Focused flow impedance with optical validation
- Hemoglobin free of interference from leukocytosis
- Complete red blood cell lineage analysis, including mature red blood cells, reticulocytes and nucleated red blood cells

PLATELET ANALYSIS

- Optical scatter and focused flow impedance
- Autoverification of results at critical decision points
- Expanded reportable range from 0 to 2 million cells/µL



ABBOTT Diagnostics Division

146A Harris Road, East Tamaki, Auckland, P.O. Box 58-611, Greenmount, Auckland, New Zealand
Tel: 09 274 9886, Fax: 09 274 6633, Toll free: 0800 656 233

SOME OTHER VIEWS YOU'LL DISCOVER

WHILST WORKING FOR CORINTH MEDICAL

In order to get the most out of your working holiday in Britain, you'll want the expert care you can only gain from Corinth. With almost thirty years experience we've grown to be the leading specialist Employment Agency in our field by helping Medical Laboratory Scientists from all over the world combine business with pleasure; giving them the opportunity to work with the UK's leading hospitals and helping them take time out to enjoy the different cultures and sights. What's more, as well as top rates of pay and an excellent package of benefits, you won't be tied to any binding contracts and you won't be charged for our services.

We'll simply offer you the widest selection of jobs and supply friendly and confidential advice on all aspects of working through an agency.

Want us to put you in the picture?

If so, complete the coupon below and send it to our Recruitment Manager, **Kate Williams** AIBMS and she will send you our FREE 'Working Holidays in Britain' Information Pack. Alternatively, you can **Call Us Toll-Free** on **0800 441586** (24 hours).

I'd like to know more about Corinth Medical.
Please send me your 'Working Holidays in Britain' brochure.

Name _____

Address _____

_____

Tel: _____

Anticipated date of travel: _____ Month _____ Year BSNZ

Corinth Medical

Post to: Corinth Medical, 5 Theobald Court, Theobald Street Borehamwood, Hertfordshire WD6 4RN. ENGLAND
Tel: 00 44 181 207 0234 Fax: 00 44 181 207 6894

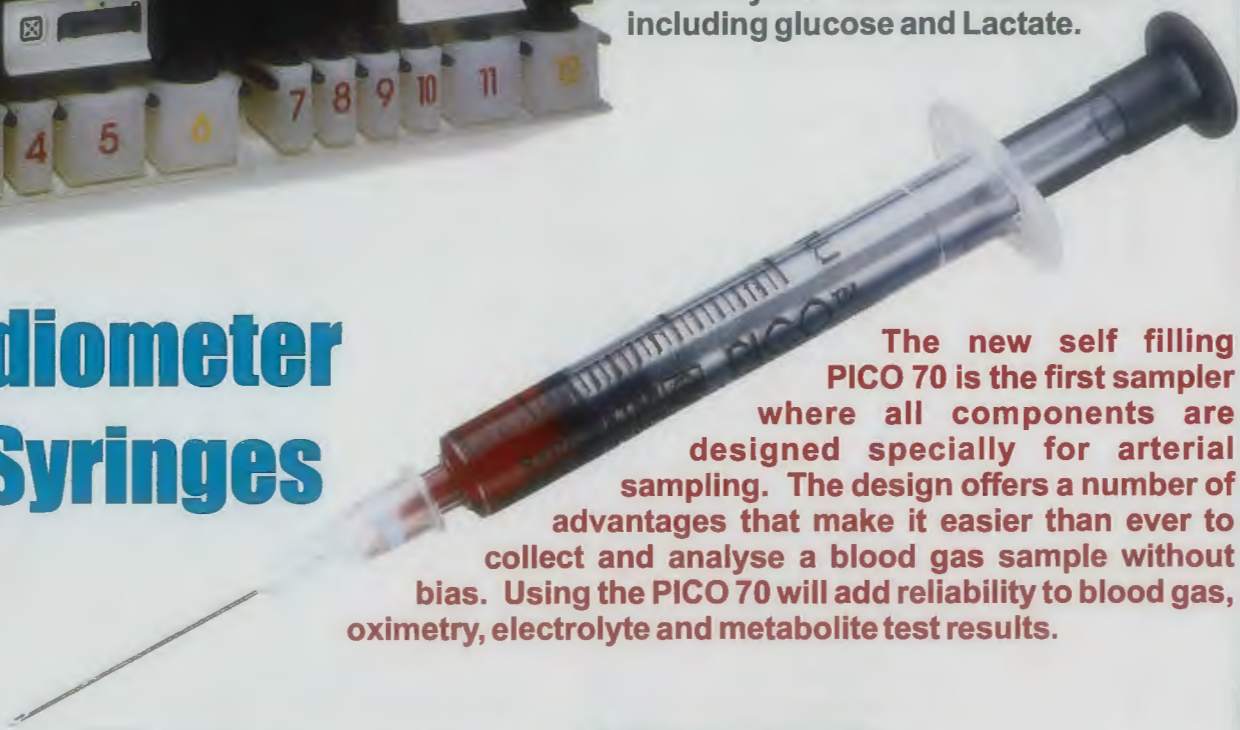
THE PROFESSIONAL STAFFING AGENCY

Radiometer Blood Gas Analysers

RADIOMETER COPENHAGEN

Radiometer fully automated Series 5XX and 6XX Blood Gas Analysers for pH, pO_2, pCO_2, haemoglobin, co-oximetry, electrolytes and metabolites including glucose and Lactate.

New Radiometer Pico70 Syringes

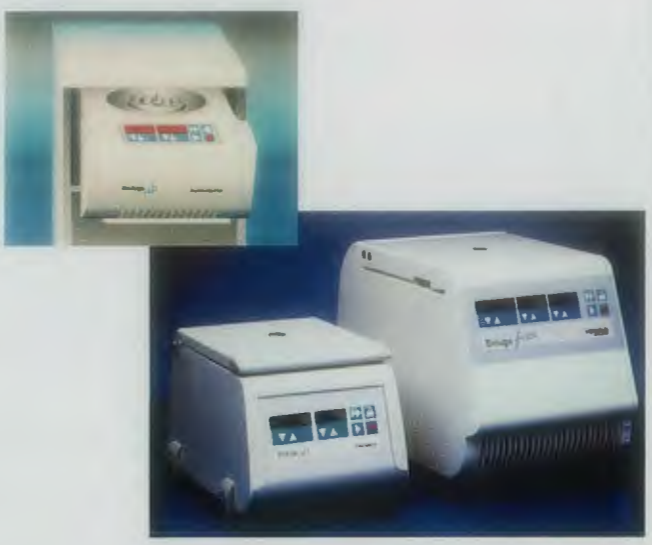


The new self filling PICO 70 is the first sampler where all components are designed specially for arterial sampling. The design offers a number of advantages that make it easier than ever to collect and analyse a blood gas sample without bias. Using the PICO 70 will add reliability to blood gas, oximetry, electrolyte and metabolite test results.

Heraeus Centrifuges

Heraeus Instruments have introduced the first, pull-out, under the bench microfuge. It is a complete unit and requires no installation, simply place directly on a table below or above your bench.

The innovative Biofuge Vito compliments our existing range of microfuges, the Biofuge Fresco (refrigerated) and the Biofuge Pico (non-refrigerated).



For further information on our range of instrumentation please call **Radiometer Pacific** at one of the following offices:-

Auckland Tel: (09) 573 1110 Fax: (09) 573 1106
Email: radpac1@clear.net.nz
Wellington Tel: (04) 589 1400 Fax: (04) 589 1500
Email: radpac2@central.co.nz

NEW ZEALAND JOURNAL OF MEDICAL LABORATORY SCIENCE

The New Zealand Journal of Medical Laboratory Science is published quarterly (March, May, August & November) on behalf of the New Zealand Institute of Medical Laboratory Science (Inc) by Institute Press Ltd, Auckland.

The Journal is indexed in the Cumulative Index to Nursing and Allied Health Literature (CINAHL).

Subscriptions:
Subscriptions to the Journal for non-members requiring delivery in New Zealand is $NZ33.00 for 1 year 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. Single issues are $NZ12.00 Surface mail paid. Members of the NZIMLS should send their enquiries and address changes directly to the Executive Officer of the NZIMLS, PO Box 3270, Christchurch.

Advertising:
Advertisement bookings and enquiries should be addressed to the Advertising Manager: Trish Reilly, 48 Towai St., St Heliers, Auckland 5. Phone: (09) 575 5057.

Editorial:
All editorial matter, including submitted papers, press releases and books for review should be sent to the Editor: Rob Siebers, Department of Medicine, Wellington School of Medicine, PO Box 7343 Wellington South. Phone: (04) 385 5999 (Ext; 6838). Fax: (04) 389 5725, E-mail: rob@wnmeds.ac.nz.
Contributors and advertisers are responsible for the scientific content and views. The opinions expressed in the Journal are not necessarily those of the Editor or Council of the NZIMLS.

Information for Contributors:
The Journal publishes original, review, leading & technical articles, short communications, case reports and letters in all disciplines of Medical Laboratory Science as well as related areas of interest to Medical Laboratory Scientists (eg) epidemiology, public & community health, education, ethics, computer applications, management, etc. All papers published will be in the form known as the "Vancouver Style" or Uniform Requirements for Manuscripts Submitted to Biomedical Journals. Concise details are listed below while full details may be found in the *NZ J Med Lab Science* 1991; 45 (4): 108-11 or from the Editor.

Papers submitted to the Journal are refereed and acceptance is at the discretion of the Editor. Papers with substantive statistical analysis and data will be reviewed for appropriateness by the Statistical Adviser. No undertaking is given that any article will be published in a particular issue of the Journal. The copy deadline for each issue is the first of the month prior to the month of publication.

Manuscripts:
Submitted papers (**in duplicate**) should be typewritten, in double spacing throughout on one side of A4 paper. Generally each component of the manuscript should begin on a new page in the following sequence.

* **Title of paper**, authors (including first name and qualifications), and institution(s) where the work was carried out. Address for the corresponding author should also be given.

* **Abstract and keywords**. Abstracts should be structured and contain concise and precise information regarding the study's **Objective(s), Method(s), Result(s)** and **Conclusion(s)**. List up to 4 keywords using *Index Medicus* medical subject headings.

* **Text**, in the order of **Introduction, Materials and Methods, Results, Discussion and Conclusion**.

* **References** should follow the style adopted by the US National Library of Medicine as used in *Index Medicus*. Refer to papers in recent issues of the Journal for guidance (or see *NZ J Med Lab Science* 1991; 45 (4): 108-11). Authors are responsible for accuracy of all references.

* **Illustrations** must be provided with a suitable legend typed on a separate sheet. Graphs should be 2-3 times larger than they would appear in the journal and contain a minimum of lettering. Legends for these should also be typed on a separate sheet. Photographs should be original sharp, glossy black & white prints. Authors wishing to submit colour photographs must contact the Editor in the first instance.

* **Tables** should be typed on a separate page complete with a title at the top and footnotes at the bottom. The tables should be numbered as they appear in the text and must *not* contain vertical lines.

* **Acknowledgements** should be made to people and/or organisations who have made substantial contributions to the study. Authors are responsible for obtaining consent from those acknowledged. Financial contributions towards the study from granting bodies or commercial organisations must be stated.

Two copies of the manuscript are to be addressed to the Editor NZ J Med Lab Science, c/- Department of Medicine, Wellington School of Medicine, PO Box 7343, Wellington South, together with a letter from the corresponding author stating that the work is original, is not under consideration for publication elsewhere, and in the case of multi-authorship that all authors have contributed directly to the planning, execution, analysis or to the writing of the paper.

The kites of **Elecsys®** represent three fundamental principles of Boehringer Mannheim's new immunoassay systems.

Novel Chemistry

To overcome the limitations of conventional immunochemistry **Elecsys®** utilises a novel detection technology called electrochemiluminescence (ECL).

Now you don't have to trade-off sensitivity, measuring range and assay time. For example, while employing 9 or 18 minute incubations ECL delivers TSH sensitivity of <0.005 mIU/L with an upper measuring range of 100 mIU/L.

Unrivalled Efficiency

Two dimensional barcodes, called Portable Data Files, encode all necessary assay and calibration information to enable rapid and error-free scheduling of tests. Long re-calibration intervals, combined with up to 8 weeks on-board stability of reagents, give you improved equipment utilisation and better operator productivity.

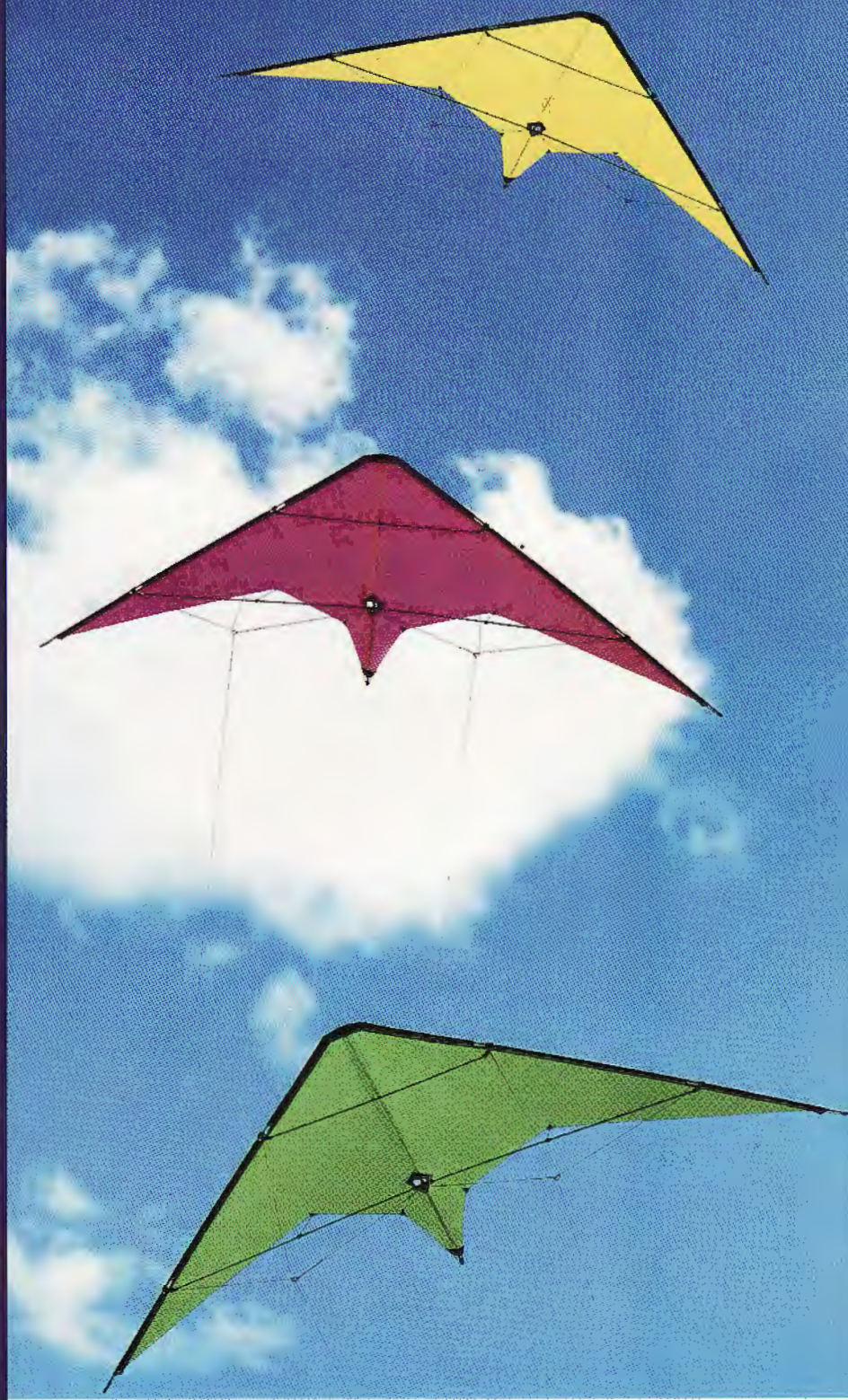
Flexible Organisation

Two **Elecsys®** analysers, the BM Hitachi **Elecsys®**2010 and BM **Elecsys®**1010, have been designed to accommodate widely varying work patterns. To increase work flow multiple units can be linked by sample rack conveyor in combination with a Laboratory System Manager for optimal sample distribution.

STAT samples can be introduced at any time on either analyser, retaining the ability to obtain urgent results when needed.

Boehringer Mannheim's **Elecsys®** analysers — reaching new heights in immunoassay testing.

Elecsys Reaching new heights

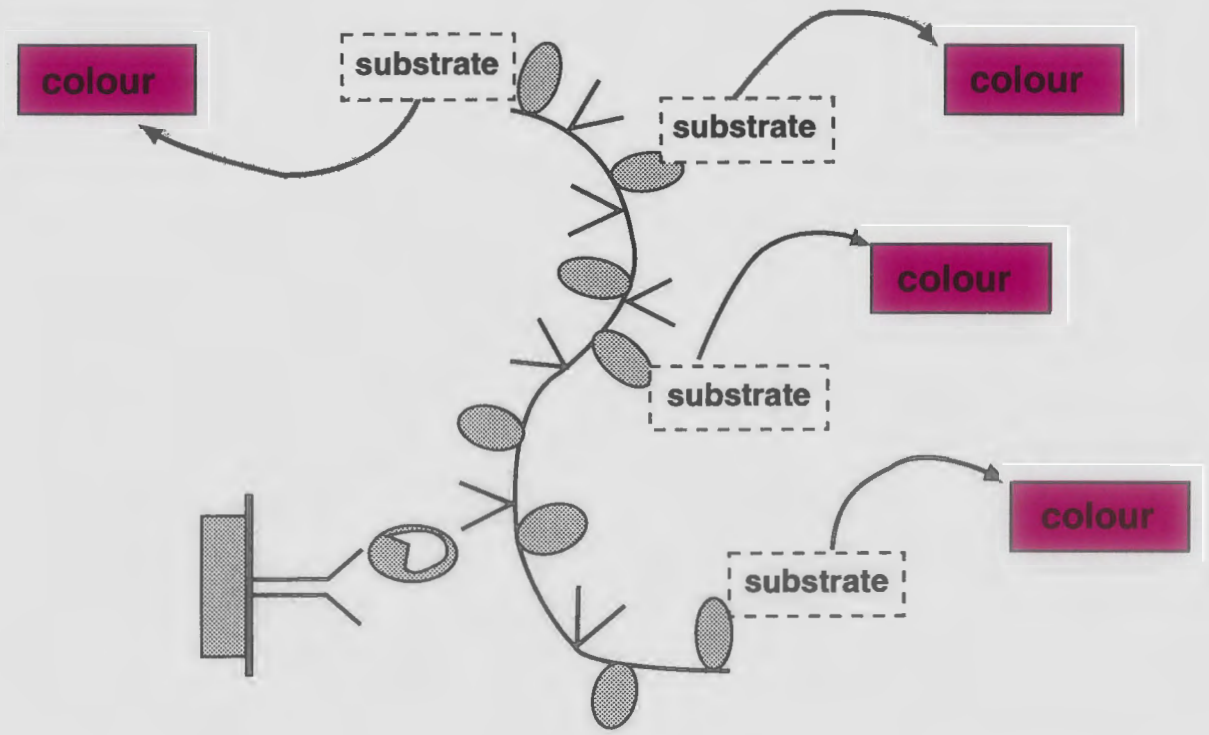


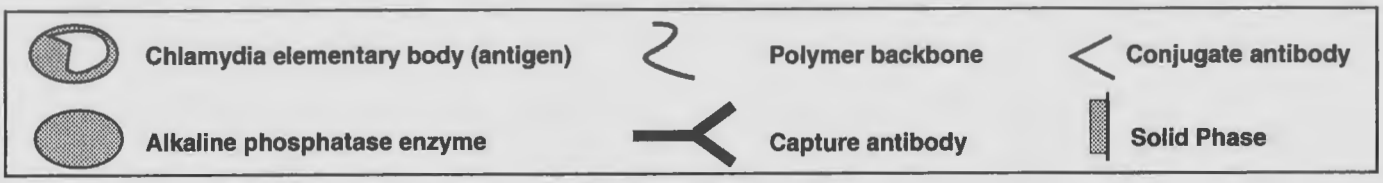
BOEHRINGER MANNHEIM
LAB DIAGNOSTICS

Boehringer Mannheim NZ Ltd
Toll Free: 0800 652 634
Telephone: (09) 276 4157
www.boehringer-mannheim.com

DAKO IDEIA
PCE Chlamydia

- Uses dual amplification technology
- Excellent clinical performance
- Convenient economical testings
- Easily adaptable to open automated systems





Clinical and in-house trials show very high sensitivity and specificity on male and female urines. Results from all specimen types compare very favourably with probes, PCR and other amplification methods.

MED-BIO ENTERPRISES ◆ Ph: 0800 733 599 ◆ Fax: 0800 101 441 ◆ email: jvincent@medbio.co.nz