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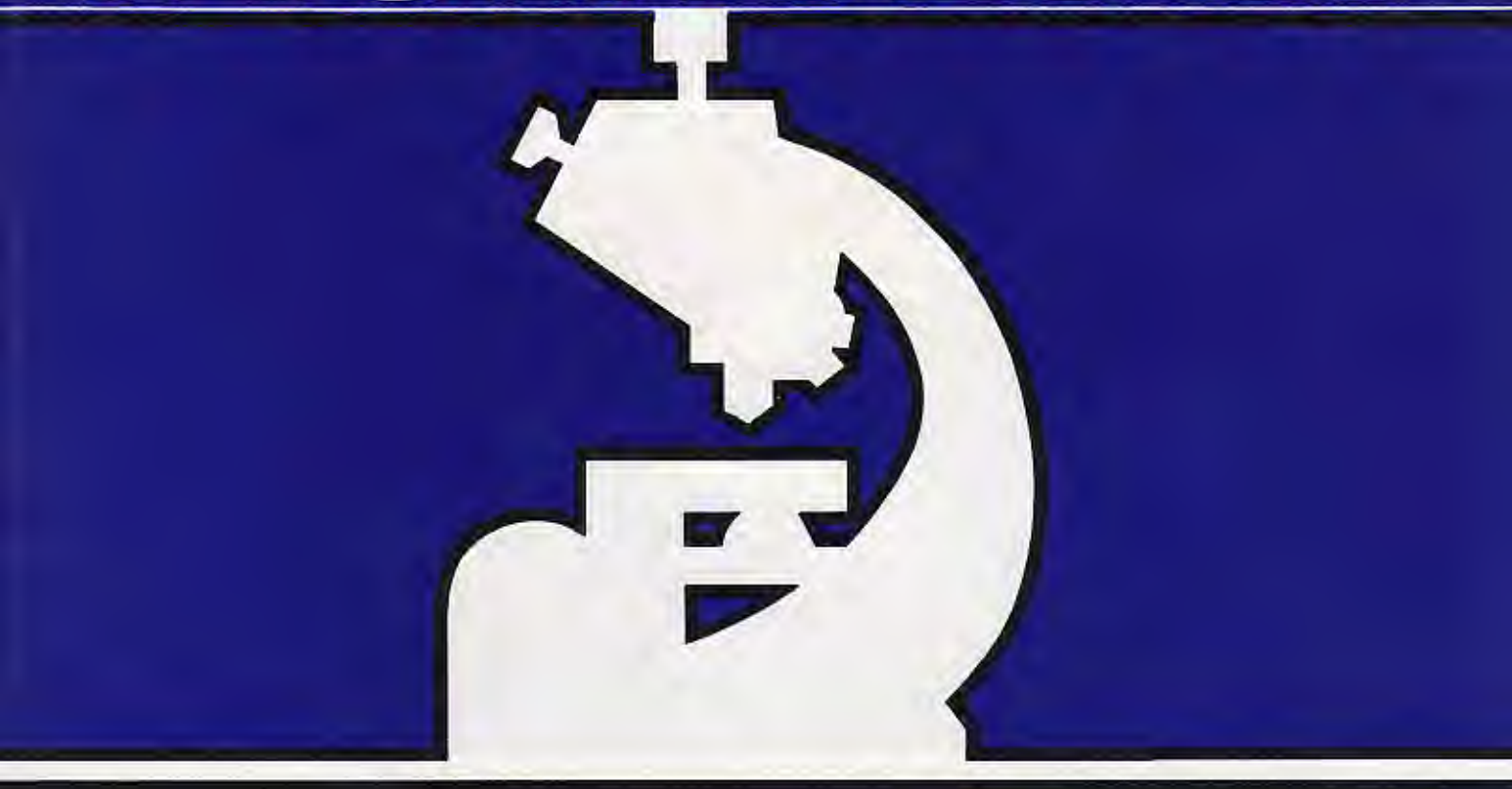

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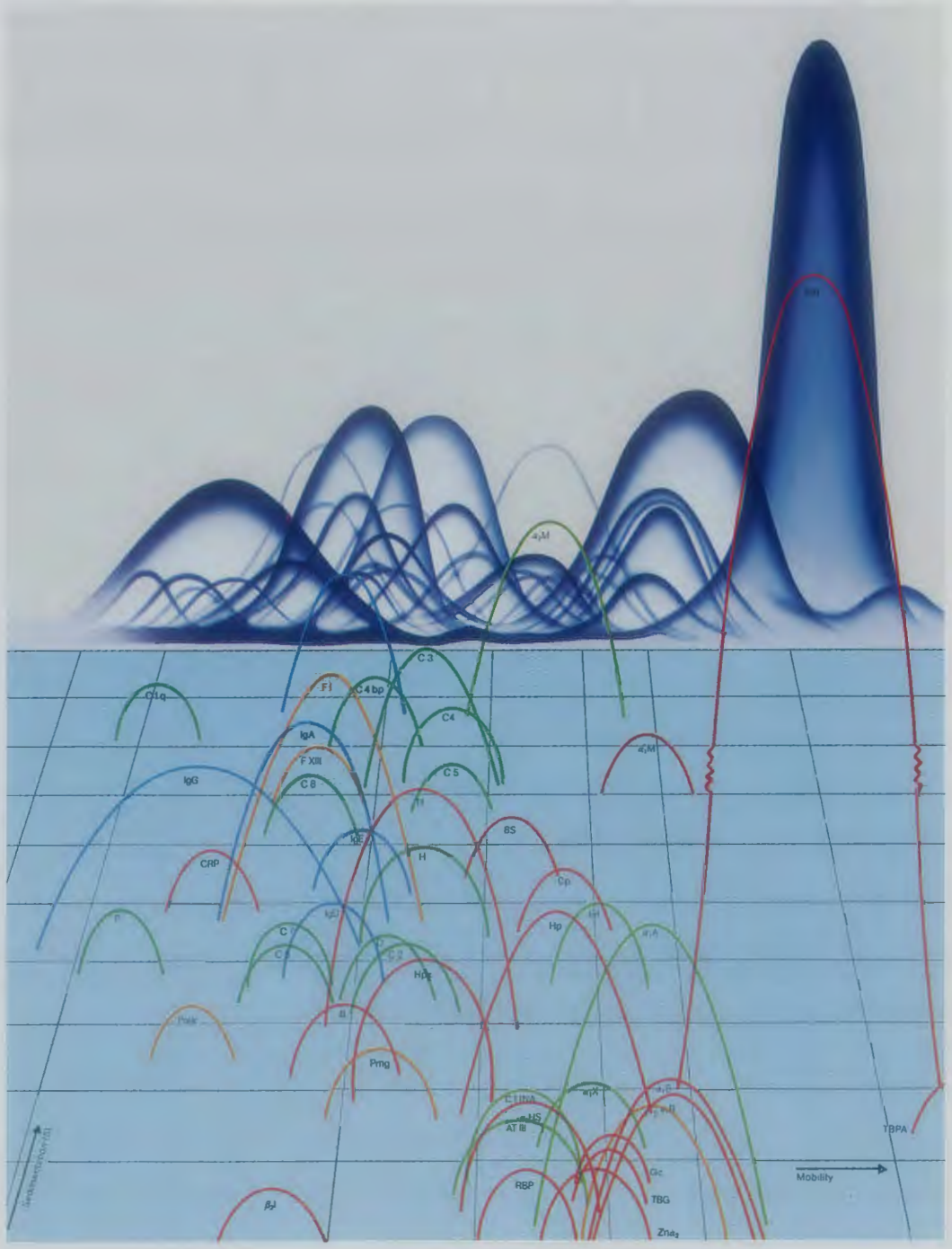

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Extra Laboratory Glucose Testing

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Introduction

Analysis of capillary blood for glucose by use of reagent strips is a well established technique in clinical chemistry and due to the simplicity of the technique its use has spread rapidly to areas far removed from the laboratory. A survey conducted in the United Kingdom showed that in 85% of sites where there was an established laboratory, clinical chemistry assays were being conducted outside the laboratory[1]. The majority of these assays were blood glucose determinations, and in more than half the units where tests were performed there was no active collaboration with the laboratory and no advice sought on quality assurance. Farr[2] also makes reference to the proliferation of analytical equipment operated without the involvement of medical laboratory staff and indeed often without their knowledge. A recent report on Extra Laboratory Testing (E.L.T.) in New Zealand public hospitals[3] revealed that 16% of the total laboratory services' budget for the hospitals surveyed was spent on reagent strips used in ward side rooms which represents a very high level of E.L.T.

Hodgson and McKenzie[4] in a study carried out in a New Zealand hospital found that the performance of even laboratory trained nurses using Boehringer Mannheim sticks was less than satisfactory and that house surgeons doing glucoses posed an even greater danger to the patients. Watkins[5] considered that because poor technique can result in grossly misleading values such results are overall of little value. A study of Watts[6] on blood glucose determinations using reagent strips revealed that it was not just use of the strip that was a problem but also actual blood collection. Among the first 100 patients tested in this survey 20% of specimens collected were unsatisfactory. Manufacturers are very keen to sell equipment to health care personnel outside the laboratory which they claim to be suitable for use by almost anyone but they cannot provide the necessary expertise in maintenance, troubleshooting and interpretation of results. Browning[7] highlights the fact that errors can and do occur without clinical staff realising anything is wrong. Written comments on laboratory forms such as 'Visidex and glucometer readings variable and unreliable', 'to compare glucometer and visidex as getting confusing results' and '? Insulinoma, 1.7 glucometer' do not inspire confidence in the output of such equipment.

Early in 1986 a quality control programme for glucometers in use at Dunedin Hospital was initiated by the laboratory. This followed a number of incidents of grossly incorrect results, by comparison with the central laboratory, being obtained by the wards. These reports remain undocumented for obvious reasons, but are typical of problems experienced over a long period of time (Table 1).

Table 1
Comparison of Ward and Laboratory Glucose Results.

Ward Result mmol/L		Laboratory Result mmol/L
Visidex	Glucometer	
	2.3	7.4
	Hi	8.4
	1.1	8.7
	Hi	25.1
	2.5	4.0
	8.7	10.8
	1.7	3.5
	22	14.3
	Hi	15.6
	1.8	13.4
	2.9	3.9
10.8	2.5	3.8
44		17.0
44		20.3
44		20.3
44		15.9
Hi		8.6
44		21.9

Materials and Methods

The Dunedin Hospital glucometers are maintained on a regular basis by one of the Intensive Care technicians who checks and calibrates meters weekly. This system has been very satisfactory over a long period of time and the laboratory did not see a role in this area. Initially units with glucometers were supplied with worksheets, known controls and a set of written instructions (Appendix 1). Stocks of Ames control sera are kept by the laboratory and issued on request. Unknown quality control material at two different levels is prepared from the Ames material and delivered on a weekly basis to each unit. At the beginning of the survey there were 11 units using glucometers but one broke down and has not been replaced.

Results

Tests Performed

3340 patient glucose estimations were performed over the 10 week period studied (Table 2). This number is actually an under estimate as one ward was discovered at the end of the period to have not been logging all patients on the provided worksheet. Average usage by their ward currently is of the order of 36

Table 2
Number of Patient Tests/Week.

Week	WARD										
	A	B	C	D*	E	F	G	H	I	J	
1	23	NR	42	3	11	19	107	18	31	Nil	
2	22	17	48	1	14	72	79	18	34	3	
3	30	10	72	Nil	20	83	135	15	31	Nil	
4	14	Nil	NR	3	19	49	110	72	36	Nil	
5	24	Nil	42	1	34	NR	125	29	40	2	
6	36	Nil	36	Nil	38	13	145	23	36	1	
7	87	35	14	Nil	35	21	90	7	46	Nil	
8	44	NR	11	Nil	15	78	172	Nil	38	2	
9	40	Nil	31	Nil	19	52	185	Nil	33	Nil	
10	22	3	31	Nil	6	49	264	3	37	Nil	
Total	342	65	327	8	174	436	1412	185	362	8	3340

* It was discovered at the end of the period that this ward had not been logging all results on the provided worksheet.

N.R. = No return

patients/week. An additional 2010 controls were processed making a total of not less than 5050 tests. 43% of all estimations were carried out at one location.

Users

It is generally believed in the hospital that the use of glucometers is restricted to a select group of trained staff. Certainly this is true in the Diabetic and Paediatric clinics but on the wards it is far from the case. Over one 2-week period more than 130 different decipherable users were logged on the laboratory worksheets.

Quality Control

A known control (Dextro-chek normal) is supplied to be processed with every patient test or batch of tests. The range of values obtained for this control over the 10 week period was 3.9-7.3 mmol/L (Quoted range 4.5-6.7). It was disturbing to note that results outside the acceptable range did not deter users from using the glucometer and on only one occasion did a recalibration appear to have been done.

The unknown controls showed a wider variation than the known controls (Figure 1) with occasional totally erroneous results for which no reasonable explanation could be found. The rate of non-compliance remained relatively constant at about 3 units/week except on week 4 which coincided with the delivery of an initial feedback report to the wards. On this week only one unit failed to process the unknown controls supplied. This non-compliance is relatively high and relates to the constant turnover of staff using the machines and the difficulty of assigning responsibility.

Before the beginning of this programme very little quality control material was used by the wards with reasons varying from 'the expense' to 'we are not actually a laboratory so we don't have to worry'. The introduction of the programme has received general acceptance. There have been continuing difficulties with supply of quality control material and on two occasions we have been forced to substitute Dextro-check Lo for Dextro-chek Normal as the known control.

Costing

Minimum costs for an estimated 350 patient tests and 200 control tests a week would be $425.31 (Table 3). This represents an expenditure in excess of $22,000/year on consumables alone. Allowing 15 minutes per patient for bleeding and testing it also represents 87.5 hours per week of nursing time or more than two full-time equivalents.

Fig1: Glucose (mmol/l)

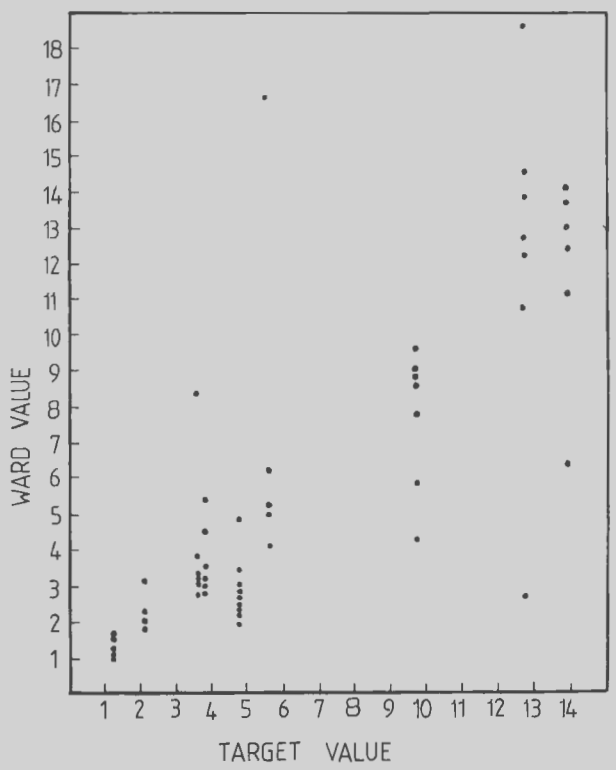

Table 3

Average Weekly Cost (350 tests + 200 controls).

ITEM	PRICE ($)
Patient Lancets (Unilet)	22.31
Patient Dextrostix	242.90
Control Dextrostix	138.80
Control sera (6 bottles/wk)	21.30
TOTAL	425.31

Conclusion

Registration of Medical Laboratory Technologists was carried out for the protection and safety of the patient. TELARC inspection of laboratories has a similar basis yet we now have a situation where huge numbers of laboratory tests are being performed and interpreted by staff who do not have the appropriate registraton using equipment and methodologies which do not come under the scrutiny of TELARC. The selection and siting of equipment has been done without reference to the laboratory although there has been little apparent resistance to the laboratory assuming a role in quality control. Large sums of money are being spent on consumables to produce in some cases wildly inaccurate results which have the potential to endanger patients. It is essential that the use of such equipment be monitored and that efforts be made to ensure results are compared with an accepted criteria.

It is inevitable within a hospital that there will be competition for revenue but while laboratories are very conscious of the costs of unnecessary testing no effort is apparently made to regulate the number of ward glucoses carried out or assess the necessity for them. As the laboratory is manned 24 hours a day the numbers cannot be related to reducing the costs of out-of-hours emergency calls but must be related to convenience and speed. Such considerations must be examined in the light of accuracy and the safety of the patient.

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Appendix 1

QUALITY CONTROL OF GLUCOMETERS

A control must be processed with every test or batch of tests.
If the control falls outside the stated limits —

1. Process control again.
2. Recalibrate glucometer.
3. Withdraw glucometer from use and notify Bob Young (through the switchboard)

An unknown quality control sera will be supplied on Mondays. Process and enter results as for patient samples.

Worksheets will be replaced on Mondays.

Controls will be replaced 3-monthly.

Replacement batteries are obtainable from Bob Young.

NEONATAL UNIT: A low value control is also supplied.

National Immunohaematology Proficiency Survey (NIPS): A Summary of Results

R. J. Austin, Charge Technologist, Immunohaematology Laboratory, Taranaki Base Hospital, New Plymouth
A. E. Knight, Charge Technologist, Immunohaematology Laboratory, Dunedin Public Hospital, Dunedin
On behalf of the Technical Sub Committee of the Transfusion Advisory Committee

Introduction

This, the eighth summary of results to be presented for publication covers the last four surveys:-

NIPS 31	(December 1985)
NIPS 32	(February 1986)
NIPS 33	(May 1986)
NIPS 34	(August 1986)

These summaries are presented with no intention to pass judgement but rather for individual laboratories and technologists to be aware of their shortcomings and to take the steps necessary to correct their deficiencies.

A comprehensive summary and discussion of results is distributed to each participating laboratory after each survey which details results on a confidential basis and contains comments from the survey referees on the antibodies and/or abnormalities present. Laboratories presenting consistent deficiencies are encouraged to contact their regional transfusion centre for assistance and advice.

NIPS 31 (December 1985)

(a) *Grouping*

130	O Rh Negative	r'r'	K-
131	O Rh Positive	R_1R_1	K-
132	O Rh Positive	R_1R_2	K-
133	O Rh Negative	rr	K+

Comment — Only minor errors in Rhesus genotyping were made in this survey. From the summary of this particular survey all participants carried out D^U testing on the apparently D negative samples.

(b) *Antibody Screening and Identification*

Serum 130 contains anti-c̄ plus anti-E.

Comment — All laboratories detected the presence of atypical antibodies although some failed to identify the weaker anti-c̄ and some did not report on the anti-E, the presence of which would have only been confirmed if cells of the rarer genotype R_1R_2 had been available.

(c) *Crossmatching*

Cells were incorrectly reported as being compatible due to a number of laboratories failing to detect the weak reacting anti-c̄ . One laboratory reported all cells as being compatible.

NIPS 32 February 1986

(a) *Grouping*

134	O Rh Negative	r_yr	K-
135	A_x Rh Positive	R_1r	K-
136	O Rh Negative	rr	K+
137	O Rh Positive	R_1r	K-

Comment — Various minor errors occurred in the Rhesus genotyping of the four cell samples. However the most significant finding in this survey was the failure of a number of laboratories to detect the A_x cell (135). This failure could be attributable to a number of factors including technologist error or reagent failure.

(b) *Antibody Screening and Identification*

Serum 134 contains anti-Kell active by Indirect Coombs technique.

Comment — All laboratories who screened and/or attempted identification were correct in reporting the presence of the antibody.

(c) *Crossmatching*

Cell 136 was incompatible due to the anti-Kell. Cell 135 should not have been transfused although apparently crossmatch compatible. A small number of laboratories incorrectly reported cells to be either compatible or incompatible. In reality none of the donor cells supplied would normally have been selected for transfusion to this particular patient: — cell 135, because in addition to being A_x is also Rhesus (D) positive, cell 136 because it is Kell positive, and cell 137 because it is Rhesus (D) positive.

NIPS 33 May 1986

(a) *Grouping*

138	A_1 Rh Negative	rr	Jk(a-b+)
139	A_1 Rh Negative	rr	Jk(a+b+)
140	A_1 Rh Negative	rr	Jk(a+b-)
141	O Rh Negative	rr	Jk(a+b+)

Comment — Only cell 141 produced any errors. One laboratory making a classical clerical error in reporting this cell as group A. Two laboratories obtained a positive result with their anti-D typing sera and two laboratories made minor errors in the Rhesus genotyping.

(b) *Antibody Screening and Identification*

Serum 138 contained anti-C+D and weak anti-Jk^a which exhibited dosage.

Comment — One laboratory reported that no antibodies were present. Other laboratories either missed detecting one or other of the antibodies or supplied incorrect identifications.

(c) *Crossmatching*

All three cell samples supplied were incompatible due to the presence of anti-Jk^a. A number of laboratories failed to detect the weak reacting anti-Jk^a especially when tested against the heterozygous Jk(a+b+) cells. In excess of 50% of laboratories would have transfused units that were Jk^a positive to a patient that had anti-Jk^a in their serum. Some laboratories, although correctly identifying the anti-Jk^a failed to Jk^a type the apparently compatible units. This may be due to the fact that some of the smaller laboratories do not have access to the rarer typing serum, but nevertheless clearly demonstrates the need to confirm the antigen status of all compatible units when an antibody has been identified. Antibodies of the Kidd system are notorious for presenting this problem and causing delayed haemolytic transfusion reactions.

NIPS 34 August 1986

(a) *Grouping*

142	A_2B Rh Positive	R_1R_1	K-	SS
143	B Rh Positive	R_1R_2	K+k-	Ss
144	B Rh Negative	rr	K-	ss
145	A_2B Rh Positive	R_1r	K+k-	ss

Comment — One laboratory reported cell 142 as group B having obtained a negative reaction with their anti-A typing sera. Other mistypings occurred in the Ss typing, and the Rhesus genotyping.

(b) *Antibody Screening and Identification*

Serum 142 contained anti-Kell and in addition anti-s̄ . However as three of the four referees failed to detect or identify this additional antibody, laboratories were not considered to be incorrect if they also failed to detect it. All laboratories correctly detected and/or identified the anti-Kell.

(c) *Crossmatching*

Cells 143 and 145 were incompatible due to anti-Kell and cell 144 may have been found to be incompatible due to anti-s̄ .

General Comments

The NIPS survey still retains its popularity with 100% participation of laboratories undertaking blood banking procedures. The survey is also enjoying an international reputation being sent to laboratories in Australia and Fiji.

It will be noted from the comments supplied in this summary

that basis errors are still occurring in the most important phase of the survey namely ABO grouping. Some of these failures can be attributable to classical clerical transcription errors and occasionally to technical failures. The interpretation of Rhesus genotyping also regularly gives rise to incorrect results being reported.

Material for these last four surveys have been provided by the main regional transfusion centres in order to provide interesting and unusual cell types that may not otherwise be seen in the smaller provincial laboratories. However, this in itself does provide some headaches for the organisers especially when sera are "doctored" with antibodies as was apparent in NIPS 34.

Only individual laboratories are aware of their failings and if they are concerned about repeated errors, they are encouraged to seek advice and guidance from their regional centre. It is incumbent upon us all to maintain the high levels of standards in Blood Transfusion practice.

Finally the organisers would once again like to take this opportunity to record their appreciation to all participants for their continued support, criticisms and supply of raw material.

An Inexpensive Enzyme Linked Immunosorbent Assay for the Detection of Hepatitis B Surface Antigen

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1. Charge Technogolist; 2. Former Charge Technologist; 3. Research Officer.

Abstract

A micro-modified enzyme linked immunosorbent assay (EIA) for the detection of Hepatitis B surface antigen (HBsAg) is described. The EIA method is performed in anti-HBs coated polyvinylchloride microtitre plates using recollected anti-HBs/Horse Radish Peroxidase conjugate. The method is routinely sensitive to less than 1 ng/mL HBsAg, is inexpensive and has proved useful for mass screening of blood donor sera and hepatitis diagnostic procedures.

Key Words

HBsAg, EIA, micro-modified.

Introduction

Commercially available EIA tests for the detection of HBsAg are expensive, especially for Blood Transfusion Centres where large numbers of screening tests must be performed. At the Auckland Regional Blood Centre the annual cost to test over 70,000 donors by commercial EIA tests is greater than $100,000 for reagents alone.

Radioimmunoassay (RIA) and EIA are the most sensitive "third generation" HBsAg tests available[1,2] and under optimal conditions can detect less than 1 ng/mL of HBsAg. With the high cost of commercial RIA/EIA kits it was decided to develop a less expensive EIA test for routine HBsAg screening of blood donors and for diagnostic hepatitis serology. Micro-modifications to the AUSRIA II-125 kit of Abbott Laboratories have been published elsewhere[3] and have proved successful in routine practice. However the RIA technique requires the handling of radioactive material and the kits have a relatively short shelf life. In contrast EIA kits have a longer shelf life and, if a non-mutagenic substrate is used, are safer.

In this paper modifications to a commercially available HBsAg detection kit (Behring Enzygnost HBsAg Micro) are described. The sensitivity and specificity of the modified EIA are determined. Data on sensitivity and specificity of two commercially available HBsAg kits is presented.

Materials and Methods

Materials

Disposable, flexible, polyvinyl chloride (PVC) 96 well microtitration plates. Cat. No. 1-220-25 (Dynatech Laboratories Inc.)

Hyperimmune horse hepatitis B antiserum (anti-HBs) (Wellcome Diagnistics) Cat. No. VK09

Bicarbonate-Carbonate buffer (BCCB). 0.05M $Na_2CO_3/NaHCO_3$ pH9.6 0.05% Saline Tween 20

Polyvinylpyrrolidone 350 (PVP) 0.1% in BCCB

Horse radish peroxidase, o-Phenylenediamene substrate, Stopping solution (0.5N H_2SO_4).

Quantitated purified HBsAg (Positive control) was obtained from the commercial kit.

Plate Coating Procedure

100μL of 1/100 dilution of the hyperimmune anti-HBs in 0.05M BCCB buffer was added to each well of a PVC microplate. Plates were sealed and incubated at room temperature for 2 hours prior to storage at 4°C.

Test Procedure

Coated microplates were washed with 0.05% Saline-Tween 20 then each well was filled with 0.1% PVP, and left to soak for 30 minutes at room temperature. Removal of the blocking solution was followed by two further washes with 0.05% Saline-Tween 20.

100μL of test serum and controls were added into designated wells of the coated microplate, which was covered and incubated at room temperature overnight (Overnight method) or at 45°C for 60 minutes (Rapid method) in a humidified chamber. At the end of the serum incubation, the microplate was washed four times with Saline-Tween 20, and then had 50μL of Horse Radish Peroxidase conjugated anti-HBs added to each well.

A further incubation at 37°C in a covered microplate placed in a humidified incubation chamber for either 2 hours (Overnight) or 1.5 hours (Rapid) was followed by conjugate recollection and microplate washes (four).

50μL of freshly prepared OPD substrate was added to each well. The microplate was covered to protect it from light and incubated at room temperature for 30 minutes.

The enzymatic reaction was terminated using 50μL of 0.5N H_2SO_4, and the absorbance of the resultant colour was determined at 492nm.

Controls

Four negative controls, one 1ng/mL, one 0.5 ng/mL, and one internal high positive control sera were tested on each microplate.

The 1ng/mL and 0.5ng/mL HBsAg positive control sera were prepared by diluting the commercial kit control serum 1/16 and 1/32 respectively in serum which was non-reactive for both HBsAg and anti-HBs.

Calculation

A threshold value (0.025) was added to the negative control mean to determine the cut off. The threshold value was derived by experimentally determining a value which would afford maximum sensitivity while maintaining specificity.

Quality Control

Results on a microplate were acceptable if: the negative control mean was below 0.100, the internal positive control minus the negative control mean was greater than 2.000, and the 1ng/mL control absorbance was greater than or equal to the cut off value.

Evaluation Protocol

Sensitivity of the modified method was assessed by testing serum samples from a sensitivity panel (No 9108) provided by Abbott Laboratories (North Chicago, III, USA) using both rapid and overnight incubation methods.

Specificity was determined by testing randomly selected blood donor samples. All samples found to be positive by the modified method were retested by Abbott AUSRIA II-125. Results were

Table 1
Sensitivity of the modified EIA technique and Abbott AUSRIA II determined by testing Abbott Sensitivity Panel 9108.

	MODIFIED EIA		AUSRIA II
HBsAg Concentrations (ng/mL)	O/night serum incubation (Absorbances)	Rapid serum incubation (Absorbances)	(CPM)
ad 2.13	0.168	0.112	675
1.40	0.137	0.078	549
1.12	0.106	0.076	395
0.87	0.092	0.062	363
0.60	0.077	0.056	276
0.45	0.055	0.051	251
0.31	0.046	0.046	229
0.17	0.034	0.047	192
0.06	0.032	0.040	158
ay 1.31	0.085	0.066	479
1.09	0.069	0.064	429
0.88	0.070	0.059	373
0.68	0.055	0.054	279
0.55	0.046	0.041	276
0.47	0.056	0.047	255
0.39	0.035	0.047	196
0.30	0.038	0.046	176
0.21	0.040	0.046	168
0.00	0.033	0.038	102
Cut Off	0.063	0.056	157

Underlined figures indicate the lowest HBsAg concentration found positive by a method.

regarded as being false positive if they were negative by Abbot AUSRIA 11-125.

Results

Table 1 shows the results obtained with each incubation method against the sensitivity panel. HBsAg subtypes ad and ay could be detected by both incubation regimes even when the concentrations were less than 1ng/mL. There was no observed effect on detection capabilities as a result of the alteration in incubation temperature and time between the overnight and rapid methods. Sensitivity of both overnight and rapid methods was slightly less than that of AUSRIA II-125.

Table 2 relates the number of false positive results (defined as being positive by the modified EIA but negative by Abbott AUSRIA II-125) found with each method to the total number of tests performed on blood donors.

Discussion

The annual cost for HBsAg detection by commercial EIA assays at the Auckland Regional Blood Centre would be approximately $110,000. As this represents a considerable financial outlay it was decided to investigate means of performing HBsAg tests at reduced cost while maintaining levels of sensitivity and specificity comparable to existing commercial methods.

Previous experience in micro-modification of immunoassays has shown that antibody/radiotracer conjugates can be recollected and reused a number of times[3]. EIA techniques employ antibody/enzyme conjugates similar to the antibody/radiotracer conjugates of RIA. It was envisaged that the antibody/enzyme conjugate could also be reused as the majority of samples would not be consumed during the test procedure. For this to be a cost saving advantage it was necessary to have available the appropriate solid phase anti-HBs coated microplate. The successful production of this enabled a single volume of conjugate to be reused in a large number of tests instead of being consumed in the relatively small number of tests performed by commercial kits using the same volume of conjugate. An EIA assay was successfully developed which was able to reuse conjugate. The successful development of a reusable conjugate EIA facilitated savings of over $77,000 per year to be made.

Retention of sensitivity comparable to commercially available methods is necessary when performing modifications to methods. The modified technique detected HBsAg at levels of between 0.5 and 1ng/mL (Table 1) for both subtypes ad and ay. This compares well with the sensitivity achieved by two well known commercial HBsAg kits evaluated by the South Australian Red Cross Blood Transfusion Service[4]. This evaluation, which also utilised an Abbott Diagnostics sensitivity of 0.060ng/mL for subtype ad and 0.68ng/mL for subtype ay. Their evaluation also showed that the Behring Enzygnost HBsAg Micro test had a sensitivity of 1.5ng/mL for subtype ad and 1.1ng/mL for subtype ay.

As the modified method utilised reused anti-HBs conjugate it was necessary to establish and maintain strict quality control guidelines. Control samples with low levels of HBsAg (1ng/mL and 0.5ng/mL) were included on each microplate. Results on a microplate were considered acceptable only if the 1ng/mL control absorbance was greater than the cut off. Quality control graphs were maintained which plotted the value 1ng/mL control absorbance minus cut off value. In this way control over the quality of the conjugate could be maintained.

The predominant hepatitis B surface antigen subtype in New Zealand is the subtype ay and it is important that any test for HBsAg should have good sensitivity to this subtype[2]. The results of the sensitivity evaluation (Table 1) show that the modified EIA method had good sensitivity to subtype ay (less than 1ng/mL).

Specificity of the modified method also compares favourably to commercial methods. The South Australian Red Cross Blood Transfusion Service[4] found the specificity of Abbott Auszyme II to be 97.8% (1880 samples tested) and Behring Enzygnost HBsAg Micro to be 99.7% (749 samples tested in their evaluation). By comparison the modified technique has a specificity of 98.1% for the overnight serum incubation method (1132 samples tested) and 98.7% for the rapid serum incubation method (2255 samples tested) (Table 2).

Table 2
Specificity of the modified technique after testing of blood donors.

Incubation Method	Total Donors Tested	No. of False Positives	Specificity
Overnight Room Temp	1132	21	98.1%
1 hour 45°C	2255	30	98.7%

The modified EIA method has proved valuable in routine use. Blood donations are tested by the rapid procedure thus allowing blood to be accredited on the day of collection. Diagnostic testing is performed using the overnight serum incubation technique. All samples found positive by the modified EIA procedure are tested for HBsAg by a commercial RIA test to verify the results. This system has allowed rapid, sensitive and reliable testing to be performed while allowing considerable cost savings to be made.

Acknowledgements

We would like to thank Dr D. G. Woodfield, Medical Director of the Auckand Regional Blood Centre for his valuable assistance in preparing this paper.

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The Pacific Way

Pacific Paramedical Training Centre

Extract from the Annual Report of the P.P.T.C. presented at the Annual Meeting held on Friday 13th June, 1986.

The Centre has now completed its fifth year of operation and those associated with the teaching programmes can look back on the 1985/86 year with satisfaction for a job well done. Three courses involving nineteen trainees have been run since the 1985 Annual Meeting, the trainees coming from a variety of cultural settings throughout the Pacific Region. In addition to the WHO, Bilateral Aid Programme and NZ Red Cross trainees in 1985/86, the Centre was pleased to welcome three League of Red Cross and Red Crescent Society trainees to a Haematology/Blood Bank Technology course, one trainee coming from Indonesia, one from the Philippines and the third from Swaziland.

In an annual report of an organisation such as the P.P.T.C., it is usual to judge the success of a year's activities by the number of courses run and number of trainees who have attended the courses offered. On this basis, the Centre could be said to have had a good year. But on a wider evaluation, and taking into consideration the results gleaned from the quality control programme, follow-up information from the home laboratories of the trainees and goodwill enjoyed by the Centre from the many people who have contributed to its activities, 1985/86 can be described as a vintage year.

One aim of the Centre is to introduce a new course each year, and 1986 saw the inception of the Laboratory Equipment Maintenance and Management Course. This course was an innovative one and included a Certificated First Aid Course, and a component on human and resource management. On the completion of this Course, a review was held with the course members and, with some modification of content, it was felt that this course was particularly valuable and appropriate to the needs of the Pacific Island laboratories and should become one of the regular courses offered by the Centre.

The Haematology/Blood Bank Technology and Microbiology courses which were run during the 1985/86 year were also most successful and these, together with further development of the microbiology quality control programme, gave Mr Michael Lynch, Tutor-Co-ordinator at the Centre, a busy and productive year. The Management Committee of the Centre were pleased that Mr Lynch was able to undertake a laboratory assignment to Kiribati for WHO over the long vacation, this being invaluable from the Centre's point of view in promoting P.P.T.C. liaison with the WHO Regional Office in the Western Pacific, and in providing an opportunity for the Tutor-Co-ordinator to renew contact with people who had attended P.P.T.C. courses.

The occasion of an annual report which sets out some of last year's activities also provides the Committee with the opportunity to express appreciation to all of the organisations and individuals who have given so generously of their time, expert knowledge and material resources.

First thanks are extended to the Ministry of Foreign Affairs, not only for the aid grant which makes the continued running of the Centre possible, but also to the Executive and Project Officers of the External Aid Division for the interest and guidance they afforded the Centre in its activities over the past year. The Committee also extends thanks to the Western Pacific Regional Office of the World Health Organisation and to the executive officers of the International Division of the Department of Health for their continued assistance and support. As in past years, the interface that the International Division has provided between the Centre, External Aid Division of the Ministry of Foreign Affairs, overseas health ministries and WHO, has been invaluable in the organisation of the various training programmes, and has been greatly appreciated.

To the Wellington Hospital Board thanks are extended for the use of the Teaching Laboratory area and for the continued help and co-operation which is always so readily available.

LABORATORY EQUIPMENT MAINTENANCE AND MANAGEMENT COURSE PARTICIPANTS FEB-APRIL 1986

Back row (left to right): Vaevae Pare (Cook Islands), Billie Bryce (Western Samoa), Faapulou Auva'a (Western Samoa), Tebebeku Teia (Kiribati), John Pola (Soloman Islands)

Front Row (left to right): Bonaventure Talley (Yap, T.T.P.I.), Willie Kalfapun (Vanuatu), Dr R. McKenzie, Mr M. Lynch (Tutor), Paulino Rosario (Ponape, T.T.P.I.)

To the New Zealand Red Cross Society a grateful thanks must be extended for financial assistance given to the Centre, for the Health Science Awards which have enabled Pacific Island trainees to attend courses at P.P.T.C.; and for the administrative functions carried out by the Secretariat at Red Cross Headquarters, this service is particularly appreciated.

The Committee would like to record appreciation to the trustees of the Norman Kirk Memorial Trust for a grant which enabled the Centre to purchase an additional microscope.

Once again, our thanks must be extended to the Wellington Central Rotary Club for financial assistance to undertake a development project; and to the Wanganui South Rotary Club appreciation is expressed for the tool kits which made an important

An example of the tool kits donated by the Wanganui South Rotary Club to all participants on the first Laboratory Equipment Maintenance and Management Course.

contribution to the success of the first Laboratory Equipment Maintenance and Management Course.

During the past year the New Zealand Institute of Medical Laboratory Technology has continued to promote the work of the P.P.T.C. and the Committee are grateful to the Institute for publicity in the Journal, for equipment donated for the teaching laboratory by a number of hospital and private clinical laboratories and for teaching input by many Institute members.

It would be difficult to name all of the people who have contributed in some measure to the work of the Centre over the past year but the Committee would particularly like to record appreciation to those members of the technical staff in the Department of Laboratory Services at Wellington Hospital who have contributed so much to the P.P.T.C. during 1985/86. To those who played key roles in the development of the new course which was introduced this year, thank you. And to those people who again took part in and maintained the high standard of the previous courses, the continuity of your effort is greatly appreciated.

Finally, to Dr Linda Holloway, Chairperson, Department of Laboratory Services, and to all who contributed to the P.P.T.C. during 1986, the Committee and trainees extend their sincere thanks.

Facilities and Equipment

The facilities in the Teaching Laboratory lecture room and wash-up/preparation area continue to be adequate and no problems have been encountered during the last year's courses.

While the basic laboratory and teaching equipment remain in good order, some minor repairs have been required to waterbaths. One new incubator may have to be purchased in the near future, and this, together with basic equipment that will be required for the Clinical Chemistry course which is proposed for mid-1987, will represent the only major expenditure for the coming year.

Two further Standard Lab 06 Zeiss binocular microscopes have now been obtained. The Centre now has six Lab 06 microscopes and they are proving to be very satisfactory. As mentioned earlier in this report, one of these instruments was funded by a grant from the Norman Kirk Memorial Trust. Thanks again are expressed to a number of clinical laboratories around New Zealand, both hospital and private, who have donated useful items of equipment. The equipment budget remains limited and gifts of equipment are greatly appreciated.

Medical Microbiology Course, Sept. 1st — Nov. 21st, 1986

The last course held during 1986 at the P.P.T.C. was in Medical Microbiology. Six students graduated.

Course participants were:

Tereapii T. R. Uka
Brian Eniti
Gideon Ronolea
Baibuke B. Tauro
Wilfred A. Kiriau
Semiperive E. Teremia

Mr Iavete Short (Cook Islands Representative) presenting the Microbiology Course Certificate to Mr Gideon Ronolea (Vanuatu). Marilyn Eales, N.Z.I.M.L.T. Representative in background.

The presentation of Certificates was held at Wellington Hospital on Friday, November 21st. A representative from the Cook Islands, Mr Iavete Short presented the Certificates. Marilyn Eales, on behalf of the N.Z.I.M.L.T. presented each student with a P.P.T.C. badge and a copy of "Medical Laboratory Manual for Tropical Countries" by Monica Cheesbrough. Mr Krypton Okesene from Niue, an independant student, also received a badge and book from the N.Z.I.M.L.T.

Mr Gideon Ronolea from Vanuatu thanked the course directors on behalf of the graduating studetns. The following is a copy of his speech.

"On behalf of the course participants, I would like to take this opportunity to convey our sincere thanks and gratitude to Dr Ron McKenzie, the Technologist in Charge, Mr Mike Lynch, the P.P.T.C. Course Co-ordinator, the Foreign Affairs and the the New Zealand Institute of Medical Laboratory Technology in their help and effort to make the Microbiology Course available to us to attend.

We also acknowledge with gratitude the assistance received from Dr Mark Jones and Mr John Elliot who are not able to attend this ceremony today and other members of the laboratory staff who had helped in the teaching, not forgetting those who had assisted us in one way or the other.

We are all very grateful to have attended this course to update and improve our knowledge in the field of microbiology. The knowledge and the experience we have gained here is very appropriate to the situation at home, and I am sure that each one of us will do all we can to update and improve the standard of microbiology when we return to our various home countries.

For us the course has been of great value and our stay in New Zealand/Wellington has been very pleasant.

We hope that the P.P.T.C. will continue to help develop and improve our various laboratories by providing the necessary training.

Distinguished guests, ladies and gentlemen, thank you for your attention."

Report of the 1986 South Pacific Congress of Medical Laboratory Science

Miss K. Caldwell, Toxicology Laboratory, Waikato Hospital

Winner of the 1986 N.Z.I.M.L.T. Scholarship

This South Pacific Congress, which is held jointly by the Australian Institute of Medical Laboratory Science (A.I.M.L.S.) and the N.Z Institute of Medical Laboratory Technology (N.Z.I.M.L.T.) every four years, was held at the Hilton Hotel, Sydney.

The attendance at this international conference with the extensive range of trade displays (over 60 companies with exhibition stands) and scientific sessions provided a great opportunity to endeavour to keep abreast with technological developments and to hear ideas on issues concerning our profession. Also, as Colvin Campbell (President, N.Z.I.M.L.T.) commented in the opening ceremony, great benefit is derived from meeting other delegates socially and discussing various topics of interest.

The Scientific Programme rather than being arranged around the traditional areas of disciplines, also offered sessions of great interest. One main theme of the conference was "The Impact of Technology on Medical Laboratory Science", and there was a variety of sessions covering various aspects of this.

In a presentation on "Educational Imperatives of Technological Changes" it was stressed that continuing education programmes (library facilities, videos, journals, scientific meetings, fellowship examinations etc) were essential to keep up with technological changes, and these needed to be supported by senior management. In our technologist training programmes "self directed learning skills" need to be concentrated on to accommodate the increasing development in technology.

There was also emphasis on economic and assessment considerations of new laboratory technology as this has significantly contributed to the increases in health care spending. There are strong indications that while new technology has brought improvements to patient care, many lab tests do not significantly contribute to patient mangement, but only provide reassurance to the clinician. When new technologies are developed the clinical usefulness should be fully assessed before being introduced for general use in health systems; and the laboratory professionals should take more responsibility in this area, rather than just concentrating on technical validation of new assays. A speaker from the F.D.A., Washington indicated that the F.D.A. assessment of new Clinical Chemistry diagnostic devices is placing more emphasis on interpretation and clinical usefulness. As well as the cost of new technologies the cost of "overuse" of existing lab tests, was also discussed. It was reported that in Scandanavia, teaching hospitals have implemented a system where all Biochem requests except for U & E's and glucoses must be approved by a senior laboratory officer. This was found to be cost effective, the reduced costs due to the elimination of unnecessary tests outweigh the incurred costs of time and employment of senior laboratory officers.

Another area discussed in presentations was the effect of E.L.T. (Extra Laboratory Testing — in USA this is known as S.P.O.T. Satellite Physicians Officer Testing) on Medical Laboratories. The development of highly automated self-contained testing devices is decreasing the need for human involvement, so that there is a growing trend for these instruments to be located outside the laboratories, in clinicians offices, intensive care units etc. It was suggested that it is the responsibility of laboratory officers to encourage the movement of some routine lab tests from "the closet" to "the bed side" which will improve lab services. However, the lab should remain responsible for:

- Assessment of these systems (especially the risks of incorrect results when tests are performed by non-technical staff.)
- Management and monitoring of these systems (calibration procedures, instrument maintenance, quality control programmes, testing protocols).
- Education programmes for E.L.T. users ie: other health professionals, patients etc.

The release of some routine assays to E.L.T. should allow some lab staff to concentrate more on specialised diagnostic investigation. One speaker concluded his presentation with a quote from Bell Atlantic (1985) which I thought was particularly relevant "We believe the genius of the future lies not in technology alone, but in the management of it".

The conference ended on a great note when the guest speaker at the closing ceremony (who we were led to believe was a senior research fellow at Kings College, University of London) delivered an extremely hilarious and entertaining commentary on the conference, and then admitted to being an imposter — he was in fact a professional comedian.

I wish to thank the N.Z.I.M.L.T. for the contribution of $500 (N.Z.I.M.L.T. Scholarship) towards the cost of my attending the conference. The experience was very worthwhile, and I feel the knowledge and ideas gained has benefitted me and my work colleagues.

Report on the International Symposium on Medical Virology Held at Anaheim, California, U.S.A. 12-14th November 1986

Rachael E. Jenkins, Grade Laboratory Officer
Virus Diagnostic Laboratory, Dunedin Public Hospital

MONOCLONAL ANTIBODIES

Anti-idiotypic antibodies directed to the variable region on the binding site of the antibody molecule which mimic the shape of the epitope have been produced. This raises the question that perhaps this can be used as a vaccine instead of viral antigen, i.e., protect against an antigen never seen.

Anti-viral drug conjugates to the anti-idiotypic antibodies have been developed. Drugs are less toxic this way since only those cells expressing viral antigen will absorb drugs.

Many studies for evaluation are in progress. The system chosen has some reasonable chance for success but the workers are less optimistic for neurotropic viruses.

CHLAMYDIA

One researcher claimed that passaging chlamydia cultures six times increases the senstivity beyond that of direct smears. During the discussion another worker indicated that there was no difference in recovery rate between bad smears and their matching swabs.

ENTEROVIRUSES AND ROTAVIRUS

A study in three different socio-economic settings demonstrated that health education and not supplied food altered children's birth weights and mortality.

HOST CELL INTERACTIONS

A 10-year study in mice has shown that viruses produce aberrations in cell functions which have a significant effect on the animal. The possible course of events and examples in humans are yet to be determined — especially regarding Multiple Sclerosis, Rheumatoid Arthritis, diabetes, papilloma viruses and carcinoma, cellular necrosis, neoplastic lesions, Altzheimer's, Parkinson's and Senile Dementia.

HUMAN PAPOVAVIRUSES

Demonstrated that congenital infections do not occur in pregnant women excreting JC virus in their urine.

Mode of transmission, risk of intrapartum infections, evidence of role in cervical cancer was discussed for human

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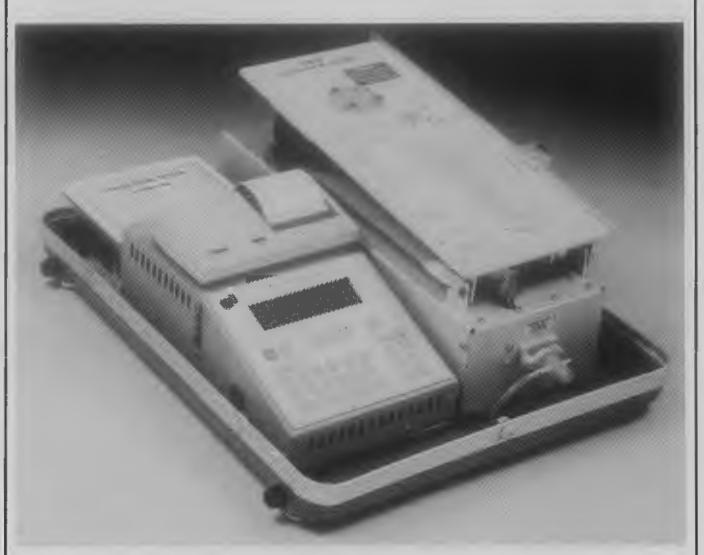

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papillomaviruses.

Typing warts by DNA hybridisation currently takes six months but more efficient systems are coming onto the market within a few months.

Experiments with human papillomaviruses (HPV) and Herpes simplex (HSV) as a potential co-factor in carcinoma are continuing. It is postulated that smoking is a more likely co-factor with HPV than HSV therefore tannic acid will be used in future studies.

EPSTEIN BARR VIRUS (EBV)

The B lymphocyte is the target cell for EBV but further studies are needed to confirm whether epithelial cells are also targetted.

Age-dependent clinical outcomes have not been fully explored.

Effects of EBV on patients with X-linked lymphoproliferic syndrome was discussed, as was prevention and treatment of EBV infections.

EBV tumours were shown to be mainly monoclonal and not polyclonal as originally thought.

SLOW INFECTIONS OF THE NERVOUS SYSTEM

Subacute Sclerosing Panencephalitis, Progressive Multifocal Leukoencephalopathy, Creutzfeldt-Jakob Disease and Scrapie were discussed. The differences between these and Multiple Sclerosis was described.

The prion theory by another worker is yet to be supported by another laboratory.

HANTAVIRUS INFECTIONS

Geographic location appears to be spreading but is only due to increased physician awareness.

Experimental hosts have not been found so human volunteers are used. Modes of transmission, clinical entities and implications, and laboratory diagnosis discussed.

Vaccines are not available yet.

RETROVIRUSES

Simian Retrovirus 1 (SRV1), Simian Immunodeficiency Viruses (SAIDS), HTLV III (or HIV), HTLV IV and HTLV I were discussed.

Workers are testing under field conditions whether type Iv protects from type III since people are exposed to both.

RHINOVIRUSES

There are 115 antigenically distinct serotypes which can be divided into two groups on the basis of competition for the same binding site, i.e., a major (containing 90% of viruses) and a minor group. Hybridomas were used to make a receptor antibody which specifically blocks this binding site for the major group (including coxsackie virus type A).

This receptor site has been cloned and shown to be ubiquitous for the human body — therefore this is not the reason why the virus is restricted to the nasal cavity.

After treatment with the receptor antibody symptoms were shortened and severity diminished by 50% in human volunteers.

Currently workers are attempting a clone to mimic the antibody to produce a smaller molecule.

INTERFERON

By using laboratory mice and rats have demonstrated that Interferon — exogenous or endogenous — may be responsible for ill effects and must be used with caution.

RIMANTADINE (Rim) AND AMANTADINE (Aman) WITH INFLUENZAVIRUS TYPE A

Rim and Aman prevents mechanism of uncoating 'flu A — they are ineffective against other respiratory viruses.

Rim is more easily tolerated and less toxic than Aman. It has been used in clinical trials at various age groups not enough evidence has been collected amongst high risk individuals. This drug may be used to control outbreaks in old people's homes and other individuals at high risk.

In a first wave pandemic where a vaccine is not available it may be politically possible to stock pile Rim in advance. The shelf life is more than five years.

Roche have bought sole rights.

LETTERS TO THE EDITOR

re: The Issues of Today

Dear Sir,

I wish to raise, for discussion, two points to do with Medical Laboratory Technology and one to do with Council.

1. **Laboratory Assistants:** I believe that there comes a time in life when experience becomes equivalent to, or surpasses examinations. Examinations are merely an easier and quicker way of acquiring information. Universities recognise this. As an adult one can attend university without University Entrance.

   In my opinion say 6 years post qualification as a laboratory assistant — or most certainly once they become senior assistants, our assistants should be able to sit the Certificate and Specialist examination of their Q.T.A. subject and be granted limited registration in that subject. They could then apply for any staff technologist position, be appointed on merit and if satisfactory, proceed up the laboratory heirarchy. They would take at least ten years to qualify, there would be no need for the Q.T.O. examinations and the future of these people would not be forever limited by a decision of their youth.
2. **A question of supervision:** One hears debated the question of supervision of trainees and assistants on shifts and questions about the legalities of some of our current practices. Surely the day is at hand when the Certificate of Proficiency should be granted only in the subjects examined. I would hate to see my haematology assistants and trainees supervised by anyone other than a technologist with an appropriate haematology qualification.
3. **The Constitution of Council:** It seems to me that far too many of the Council posts are voted for on a New Zealand wide basis, with the result that there can be a significantly heavy loading from any one area. Recently the system has worked well for us in Auckland but this is not always the case.

   I suggest that the President and Secretary only should be elected from a nation-wide ballot, perhaps even for three year terms as there is something to be said for stability at the top. I suggest that the Editorship should remain a Council appointment. The effort involved in relocating the Editorship is too great to leave to the vagaries of electoral procedure. I believe that the Editor has no vote on Council, so there is nothing to fear in terms of political appointments.

   This would leave 8 Council positions. The country would be divided into 8 population based areas each of which would elect a regional representative. I have always felt sorry for the North of Auckland who must feel overwhelmed by us in Auckland.

   At the first post election Council meeting vice presidents and treasurer would be elected by the new Council from the newly elected. I feel that this would be a fairer system, our individual votes would have more clout, and some of the distance problems experienced by regional representatives with geographically large districts, would be diminished and any district loading of Council would be stopped.

   I look forward with interest to comments.

Yours faithfully

Raewyn Bluck

Errata

Vol. 40 No. 4 1986 contained an error on page 162. In the paragraph headed "Method" the fourth sentence should read: "Add 2.0ml of iso-octane/iso-propyl alcohol (85:15 v/v) containing 0.5μg of the internal standard compound L 8040 per ml and vortex mix for at least 30 seconds."

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

CORRESPONDENCE

The Executive Officer
N.Z. Nurses Association
P.O. Box 2128
Wellington

Dear Madam

Re: Extra Laboratory Testing

This Institute has been concerned for some time at the tendency of hospitals to install laboratory equipment in ward siderooms or other clinical areas. The reasoning behind the purchase and installation of such equipment is usually based on economics and that it does not involve the use of the laboratory when laboratory tests are required especially out of hours.

Although this Institute can see merit in the installation of simple screening instruments in clinical areas it is opposed to the widespread use of diagnostic instrumentation outside of the medical laboratory.

If such equipment is to be installed, this Institute regards it essential that the maintenance, calibration and training of the staff remain the responsibility of the medical laboratory.

It would be appreciated if your organisation could consider this matter and comment on the role of the nurse in operating laboratory equipment in clinical areas.

Yours sincerely

B. T. Edwards
Secretary N.Z.I.M.L.T.

Dear Mr Edwards,

Thank you for your letter of 7 August 1986 re: extra laboratory testing. This was discussed by the National Executive of this Association at its meeting on 14 and 15 August 1986.

National Executive members appreciated that results were sometimes required very rapidly, particularly in intensive therapy units. There was general agreement that the use of laboratory equipment is a non-nursing duty.

National Executive decided that your Institute's concern should be passed on to our members, and this was done in a circular sent to our 58 branches on 17 September 1986.

Yours sincerely

Patricia Carroll
Executive Director
N.Z. Nurses Association

The Chief Executive
Health Service Personnel
Commission
P.O. Box 10-242
Wellington

Dear Sir

Re: Composition of Interview Panels

It has been brought to the attention of this Institute that on two occasions appointments have been made to charge technologist positions by interview panels that did not include any of the occupational class.

In both cases the interview panels comprised very competent people including pathologists and Personnel Department staff but no medical laboratory technologists. Obviously any appointment to such a senior position will require an assessment of the technical ability and laboratory management skills of the applicants and this Institute feels that it would be a considerable advantage to the employing Board to have the views of an experienced technologist. Even when positions are for the principal technologist of a hospital it would still be appropriate to invite a senior technologist from another institution to be a member of the interviewing panel.

This Institute would like to see a member of the occupational group on all interview panels where applicants are being considered for an appealable position.

Yours sincerely

B. T. Edwards
Secretary N.Z.I.M.L.T.

Dear Mr Edwards

Thank you for your letter of 7 August.

Your concern and comments are noted. As a general principle of good personnel practice this Commission supports your contention that there should be an appropriate member of the occupational group on all interview panels when applicants are being considered for an appealable position.

I think you would agree that the two cases are exceptions to the normal practice. However prompted by your letter we have inserted into the new Health Service Personnel Manual advice that interview panels for professional and technical positions should include at least one person appropriately qualified in the occupational group concerned. The manual will be published shortly.

Yours sincerely

P. F. Geoghegan
for Chief Executive, H.S.P.C.

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☐ Complimentary Member (Date Commenced Work: _____)

AND Certify That I Have:

☐ Not Previously Been a Member ☐ Previously Been a Member (State Category: _____)

☐ Resigned (Date: _____) ☐ Did Not Resign

I am employed as: _____

in the Speciality Department of: _____

Highest Professional Qualification: _____ Year Obtained: _____

Applicants Signature: _____ Date: _____

Nominated by: _____

(Current Financial Member N.Z.I.M.L.T.)

Enclosed with Application $ _____ Subscription $ _____ G.S.T. $ _____ Total Paid

(See Latest Journal for Current Subscription Rates)

Please Forward Completed Application Form to: **Membership N.Z.I.M.L.T.**
P.O. Box 29115
Greenwoods Corner
Auckland New Zealand

(Please Leave Blank)

Received _____ L

Acknowledged _____ R

Council _____ S

Notified _____ E

Convenor _____ M

Council Comment

The Institute's legal advisors, Kensington Swan, are available to assist members if they require legal advice over appeals or disciplinary proceedings. Any costs incurred are the responsibility of the member.

The Secretary
N.Z.I.M.L.T.

Dear Sir

Re: Hepatitis B Vaccination Programme

Thank you for your letter of 30 July 1986 expressing your institute's concern about the vaccination against Hepatitis B for all new born and pre-school children in risk areas.

The Department of Health is aware of the serious long term effects that some people may suffer as a consequence of contracting the Hepatitis B virus and much effort is going into the development of a prevention programme.

I believe that the expanded programme of Hepatitis B immunisation, which I announced recently is an appropriate response to the evidence we have about the prevalence Hepatitis B at the present time. This programme is the next major stage in the development of the Department of Health's immunisation programme.

I have been advised by the department that the fine details of administering the extended programme are currently being worked out, and the programme will begin as soon as possible.

Thank you for your concern.

Yours sincerely

Michael Bassett
Minister of Health

The Editor,
The Journal of Occupational Health and Safety,
P.O. Box 2378,
Auckland.

Dear Sir,

Re: Journal of Occupational Health and Safety

I have received a copy of the first issue of The Journal of Occupational Health and Safety and as Convenor of the Safety Committee for the New Zealand Institute of Medical Laboratory Technologists would be interested in further information. We represent 1500 workers spread over both hospital and private laboratories and would like to see ourselves defined as a Special Interest Group entitled to the discounted subscription rate. Would you please let me know if this is possible and what information you would require.

Yours sincerely

J. E. Parker

Convenor — Safety Committee N.Z.I.M.L.T.

Dear Mrs Parker,

Thank you for your recent letter.

We are happy to recognise the New Zealand Institute of Medical Laboratory Technologists as a special interest group, for the purposes of the discounted subscription rate. (A$100 instead of A$210).

Yours sincerely

Glennis Webber
General Manager
Commerce Clearing House (New Zealand)

BRANCH NEWS

AUCKLAND BRANCH

The N.Z.I.M.L.T. Auckland Branch Annual General Meeting was held on 11 November. The new Committee Members for 1987 are as follows:-

Mr D. Dixon-McIver	Chairman
Miss A. M. Hickling	Secretary
Mr P. G. Wyatt	Treasurer

Ordinary Committee Members:-

Mr C. Burnett	Miss L. Glogoski
Mr D. Underwood	Mr I. Green
Mr G. Rimmer	Miss K. Rogers
Mr I. Guild	Mrs V. Deeming

Membership Sub-Committee Report November 1986

Since our August meeting there have been the following changes:

	12/11/86	17/8/86	27/6/86	5/3/86
Membership:	1724	1735	1792	1753
Less resignations	8	24	78	1
Less G.N.A.	11	2	32	—
Less deletions	—	—	9	—
Less deceased	—	—	1	—
	1705	1709	1672	1751
Plus applications	11	12	62	40
Plus reinstatements	2	3	1	1
	1717	1724	1735	1792

Applications for Membership

Miss Toni LAURIE, Dannevirke; Mr Bramhanand MAHARAJ, Fiji; Miss Veronica VAN TILBURG, Auckland; Miss Louise FROST, Wellington; Mr Michael VENABLES, Wellington; Miss Denise McKENZIE, Wellington; Miss Jeanine STAIRMAND, Wellington; Mr Rajendra PARMER, Fiji.

Applications for Associateship

Mrs Janice PINKERTON, Te Kuiti; Mrs Deborah MEFFIN, Auckland; Mrs Rosalind POWER, Dannevirke.

Honorary Members

Dr A. WEBBER, Australia; Mr J. WHITELEY, Australia; Ms J. MARTIN, Australia.

Reinstatements

Mrs Sarah JERARD (nee SMITH), Christchurch; Mrs Rosemary BARNETT, Wellington.

Resignations

Mr F. KERSHAW, Dunedin; Mrs C. SLOAN, Auckland; Mrs J. LAST, Dannevirke; Ms L. ANDERSON, Wellington; Mrs S. VAIL, Taradale; Miss G. KIRKBY, Dunedin; Miss S. CLEARWATER, Invercargill; Mrs L. HALL, Christchurch; Mrs L. GOOK, Hamilton; Mrs J. TREVATHEN, Dunedin.

Gone No Address

Miss R. GRIFFTHS, Auckland; Miss A. ABERNETHY, Auckland; Miss M. GANLEY, Auckland; Miss M. FRENCH, Whangarei; Mrs A. BELL, Lower Hutt; Mr R. PICKETT, Palmerston North; Mr M. DALLAS, Palmerston North; Miss V. MIHALJEVICH, Auckland; Miss J. HAIGH, Auckland; Mr D. SCARROW, Wellington; Mr G. LE CORNEC, Auckland; Mrs R. OLDERSHAW, Auckland; Mr C. BOWDEN, Dunedin.

AWARDS AND PRIZES

Examination Prizes

These are all subject to the restriction that the candidate must obtain an aggregate 'B' pass or greater in the Board's Examinations and be a financial member of the Institute.

1. N.Z.I.M.L.T. Examination Prize for Qualified Technical Assistants — $50

NELSON 1987

NZIMLT SCIENTIFIC MEETING

Venue: D.B. Quality Inn
(ex Rutherford Hotel)

Date: August 18-21, 1987

Please note that this is a three day meeting with the Welcome Evening being held on August 17th.

Donor — New Zealand Institute of Medical Laboratory Technology
Subjects — Clinical Biochemistry
Medical Cytology
Histological Technique
Microbiology
General

2. NZ Blood Foundation Prize for Qualifed Technical Assistants — $50
Donor — New Zealand Blood Foundation
Subjects — Immunohaematology
Haematology

3. Medical Laboratory Technologist Board Certificate Level Examination Prizes $50

Subject	Donor
Clinical Chemistry	— Roche Products NZ Ltd
Haematology	— Kempthorne Medical Supplies Ltd
Histology	— Kempthorne Medical Supplies Ltd
Immunohaematology	— Technical Equipment Pty Ltd
Immunology	— Hoechst NZ Ltd
Microbiology	— Roche Products NZ Ltd
Medical Cytology	— Biotek Supplies
Nuclear Medicine	— Amersham Pty Ltd
Cytogenetics	— Sci Med (NZ) Ltd

4. Medical Laboratory Technologist Board Specialist Level Examination Prizes $100

Subject	Donor
Clinical Chemistry	— Watson Victor Ltd
Haematology	— General Diagnostics
Histology	— Sci Med (NZ) Ltd
Immunohaematology	— Medic Corp
Immunology	— Hoechst NZ Ltd
Microbiology	— Wilton Scientific Ltd
Virology	— Gibco NZ Ltd
Medical Cytology	— Biotek Supplies
Nuclear Medicine	— Amersham Pty Ltd
Cytogenetics	— Sci Med (NZ) Ltd

Journal Awards

Restricted to financial members of the Institute. The sum of $200 awarded bienially for the best original or review article in the following categories:

1. N.Z.I.M.L.T. Journal Student Award
2. Roche Products Microbiology Award
3. Roche Products Clinical Chemistry Award
4. McGaw-Dade Haematology/Immunohaematology Award
5. Hilder Memorial Prize for the best Technical Communication
6. N.Z.I.M.L.T. Journal Prize for subjects not covered above.

Travel Awards

Application forms are available from the Secretary, N.Z.I.M.L.T. Winners are announced at the Annual Conference.

1. **Wellcome NZ Ltd International Travel Award**
Donated by Wellcome NZ Ltd for single return airfare plus accommodation to assist an N.Z.I.M.L.T. Member to attend the biennial Congress of the I.A.M.L.T. as official delegate.
2. **The N.Z.I.M.L.T. Scholarship**
$500 donated annually by the N.Z.I.M.L.T. for research or to attend an overseas scientific meeting. Applications close on the 1st July.
3. **The Eli Lilly Microbiology Scholarship**
$500 donated annually by Eli Lilly for research or to attend an overseas scientific meeting. Applications close on the 1st July.

The N.Z.I.M.L.T. would like to thank all firms for their continued support.

Requirements for A.I.M.L.S. Membership

Qualification for corporate (Associate/Graduate) membership of A.I.M.L.S.

The list below details those qualifications that have been assessed as acceptable for corporate membership of the Institute.

Acceptable Australian Qualifications

The following qualifications, together with 2 years approved postgraduate professional experience, are acceptable for **Associate Membership,** or, **without** the required postgraduate professional experience for **Graduate Membership.**

1. A degree of Bachelor of Science or Applied Science from an Australian University or College of Advanced Education provided that the major subjects are relevant to Medical Laboratory Science and that the course transcript is approved by the Institute.
2. The degrees of Bachelor of Applied Science (Medical Technology/Medical Laboratory Science) from the following institutions are courses approved by the Institute.
   (i) Queensland Institute of Technology
   (ii) Royal Melbourne Institute of Technology
   (iii) South Australian Institute of Technology
   (iv) Western Australian Institute of Technology
   (v) Tasmanian College of Advanced Education
   (vi) Riverina College of Advanced Education (provisionally accepted)
   (vii) Canberra College of Advanced Education (provisionally accepted—
3. The degree of Bachelor of Applied Science (Biomedical Science) from the New South Wales Institute of Technology has been approved as an acceptable qualification provided the majority of the subjects within the course are applicable to medical laboratory science. Applicants holding this qualification are required to include a **course transcript** with their application.
4. From time to time other courses may be provisionally accepted and applicants should check with the National Secretary if they have any queries regarding the acceptability of their course for corporate membership.
5. Persons who were eligible for Associate Membership under the Institute's Branch Examining Council requirements operating until 1974 may be admitted as Associate members.

Acceptable Overseas Qualifications: The following qualifications, together with 2 years approved postgraduate professional experience are acceptable for **Associate Membership,** or the **Graduate Membership** without the required professional postgraduate experience, upon residency in Australia.

Canada

Advanced Registered Technologist (A.R.T.) — Canadian Society of Laboratory Technologists.

Chile

Degree or Diploma in Medical Technology — Santiago and Austral Universities.

New Zealand

Certificate of Proficiency in Medical Technology issued by the Department of Health, New Zealand and leading to Associate Membership of the N.Z.I.M.L.T. if obtained prior to 1st January, 1974. Fellowship of N.Z.I.M.L.T.

South Africa

National Diploma in Medical Technology accepted by the South African Medical & Dental Council for registration as a Medical Technologist, if obtained prior to 1st January, 1974.

United Kingdom

Associateship of the Institute of Medical Laboratory Technology, Higher National Certificate or Diploma in Medical Laboratory subjects, if obtained prior to 1st January, 1974.

United States of America

Registration with the American Society of Clinical Pathologists, MT (ASCP). Licensure for Clinical Laboratory Technologist as issued by the Department of Public Health, State of California.

In addition appropriate degrees in Science taken at overseas Universities in good standing, provided that these are approved by the Institute.

Student membership is available to persons pursuing those degree level courses which provide the academic basis for Associate Membership as listed in 2 & 3 above.

N.Z.I.M.L.T. LIBRARY

The following journals have recently been received by the N.Z.I.M.L.T. These are available for loan from The Librarian, Mr J. Lucas, Haematology Dept., Dunedin Hospital.

Canadian Journal of Medical Technology Vol. 47 No. 3

1. Evaluation of an Antithrombin III assay using the Multistat microcentrifugal analyzer.
2. Update on the immunocytochemical identification of lymphocytes in tissue sections.
3. The effect of evacuated sample tubes on tests of haemostasis and thrombosis.
4. Growth of granulocyte/macrophage colonies in agar microcultures.

Vol. 47 No. 4

1. Replica agar plating carbohydrate assimilation by medically important yeasts.
2. Sedimentation of common clinical isolates.
3. Stability and toxicity of human placenta conditioned media.

Vol. 48 No. 1

1. Evaluation of techniques for the isolation of *Campylobacter jejuni.*
2. An evaluation of a manual polybrene test for antibody detection and identification.

Vol. 48 No. 2

1. Understanding the Gram Stain.
2. Comparative study of an automated amniolytic Factor X and coagulant Factor X assays in normal and warfarin treated patients.

Vol. 48 No. 3

1. Effects of proteins and triglycerides on serum sodium and potassium values obtained by the Kodak dry film potentiometric technique.
2. Screening of specimens submitted for mycobacteriology culture.
3. A simple and effective technique for washing filter strips.

Australian Journal of Medical Laboratory Science Vol. 7 No. 1

1. Lipid transport components: the variants, isoforms and disorders associated with atherosclerosis.
2. Evaluation of four acid phosphatase kits using α-naphthyl-phosphate substrate.
3. Evaluation of a modified method for the estimation of bile acids.
4. The use of monclonal antibodies in automated blood grouping.
5. A microplate technique for enzyme enhanced haemagglutination.

Journal of Medical Technology Vol. 2 No. 10

1. Focus on computer applications in quality control.

Vol. 2 No. 11

1. Focus on Immunology.

Journal of Occupational Health and Safety Vol. No. 1

1. Stress in the workforce.

Medical Laboratory Sciences Vol. 43 No. 2

1. Thionin: further studies and discussion.
2. Effect of melanin bleaching on immunoperoxidase, with reference to ocular tissues and lesions.
3. The effect of fixation upon monoclonal cryostat immunohistochemistry
4. Determination of plasma total alpha-1-antitrypsin by enzyme-linked immunosorbent assay.
5. Measurement of vitamin B_{12} and serum folic acid: a comparison of methods.
6. Enhanced luminescence: application in a photographically monitored enhanced luminescent enzyme immunoassay for factor VIII related antigen.
7. Detection of Type I and Type II antibodies to intrinsic factor.

8. Immunogold cell labelling system for T lymphocyte enumeration: an evaluation.
9. The anti-bacterial activity of topical anti-infective eye preparations.
10. Factors influencing blood group antigen estimation by immunoautoradiography.
11. Influence of tube type on the antiglobulin test.
12. The copper sulphate screening test for haemoglobin levels in blood donors: a re-assessment.
13. Adverse effects of sodium heparin on a radioimmunoassay for plasma cortisol.
14. Mixing video and micro-computer output signals: application in microscopy.
15. Inherent anti-A in mouse ascites fluid.
16. Thermonuclease testing: the rapid identification of *Staphylococcus aureus* in blood culture.
17. Microplate blood grouping with computer-controlled reading and data interpretation.

Medical Laboratory Sciences Vol. 43 No. 3

1. Demonstration of leprosy bacilli in the eyes of experimentally infected armadillos: a comparison of five melanin bleaching methods.
2. Preparation of factor VII-depleted plasma by immunoaffinity chromatography of insolubilised anti-factor VII.
3. Intrinsic factor antibodies in relation to disease.
4. Effects of selected enzymes and monosaccharides on the binding of five bacterial strains to human lymphocytes.
5. Antimicrobial susceptibility determination by an automated conductance technique.
6. Comparison of five ovine isolates of *Chlamydia psittaci*: an evaluation of three cell culture treatments.
7. A sterility testing method for blood products.
8. Bacterial contamination of blood for transfusion: a study of the growth characteristics of four implicated organisms.
9. Rapid analysis of polyamines in cell culture by high performance liquid chromatography.
10. Automated counting of cells in peritoneal dialysis effluent.
11. Normal monocyte sub-populations defined by monoclonal antibodies and alpha-naphthyl acetate esterase cytochemistry.
12. Routine screening of catheter urine specimens for chlorhexidine resistant organisms.
13. Identifying Actinomyces.
14. Polymerisation of LR Gold resin using white light.

National Immunohaematology Equipment Register

In 1984 the Technical Sub Committee of the TAC decided that it would be useful to compile a Register of the Equipment currently used in New Zealand Laboratories.

The object of this exercise is to make available a list of equipment and users so that individuals wishing to purchase equipment can ascertain what is available and if interested obtain evaluations from those users.

This list is now complete and comprises the following types of equipment.

ALIQUOT MIXERS
AUTO-ANALYSERS
AUTOCLAVES
BALANCES
BARCODE READERS
BARCODE WANDS
BILIRUBINOMETERS
BIOHAZARD CABINETS
BLENDERS
BLOOD GROUPERS
CELL COUNTERS
CELL HARVESTERS
CELL SEPARATORS
CELL WASHERS
CENTRIFUGES
CHART RECORDERS
COLD ROOMS
COMPUTERS
CONDUCTIVITY METERS
COOLING UNITS
DILUTERS
DILUTER/DISPENSERS
DISPENSERS
DONOR CHAIRS
EIA READERS
FREEZE DRYERS
FREEZERS
GAMMA COUNTERS
GLASSWARE WASHERS
HAEMOGLOBIN METERS
IRRADIATORS
LAMINAR FLOW CABINETS
LIQUID NITROGEN CABINETS
MICROPLATE MIXERS
MICROPLATE SHAKERS
MICROPLATE WASHERS
MICROSCOPES
MULTIMETERS
OVENS
PH METERS
PIPETTES
PIPETTE DRYERS
PLASMA EXTRACTORS
PLATELET MIXERS
PRINTERS
REFRIGERATORS
ROLLER MILLS
SALINITY METERS
SCALES
SHAKERS
STIRRERS
SUCTION PUMPS
TACHOMETERS
THERMOMETERS
TIMERS
TRAY DISPENSERS
TRAY LOADERS
TRAY OILERS
VACUUM PUMPS
VIAL CAPPERS

National Immunohaematology Equipment Register

If you have purchased new equipment please fill in the form below and return it to: David Wilson, Immunohaematology Department, Palmerston North Hospital, Private Bag PALMERSTON NORTH

EQUIPMENT	TYPE	MAKE	MODEL NUMBER
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

User Name: .....

Address: .....

.....

HEAT EXCHANGERS	VORTEX MIXERS
HEAT SEALERS	WATER PURIFIERS
HEATING BLOCKS	WATERBATHS
ILLUMINATORS	WATERBATH UNITS
INCUBATORS	

There will be a form in each issue of the journal and it would be appreciated if those who have purchased new equipment would fill it in and return it so that an up to date register can be kept.

Those people wishing to obtain user lists and evaluations should contact:-

David Wilson
Immunohaematology Department
Palmerston North Hospital
Private Bag
PALMERSTON NORTH

On the Lighter Side

Far to the South of Auckland and close enough to the Bombay Hills to be included in "the rest of New Zealand" lies a hospital which is slowly emerging from a state of hibernation to one that is marching on the forefronts of science. Recent advertisements have stated that it is one that is "on the move"!! Where to — we are not sure. Innovative new ideas are sprouting up all over the place and nowhere was this more apparent than at a recent Department Christmas party where Christmas gifts included cushions with a hypersegmented neutrophil motif to a set of red balloons in a variety of shapes resembling ailing red cells. This latter gift makes an ideal teaching set enabling Medical Technology trainees to be taught by the instant visual method of "Look and Learn". Tedious hours of eye-strain peering down a microscope can thus be eliminated.

A set of labels cleverly contrived to reduce the labour intensive task of designing Haematology report forms was another novel idea with practical application and came complete with instructions. Approval is being sought from the Standardisation Committee in Haematology to introduce these cut-out labels on a nationwide basis. The labels and their instructions will have widespread appeal and are printed below for your perusal. For further details contact the Charge Technologist.

RED CELL COMMENT LABELS

Normochromic	Pencil cells	Tippled cells
Hypochromic	Biro cells	Burrcells
Hypochondriac	Marker-pen cells	Brrr cells (P.C.H.)
Poikilocytosis	Target cells	Howell Jolly Bodies
Polychromasia	Stomatocytes	Nancyocytes
Echinocytes	Tomatocytes	Pappenheimers
Kina-cytes	Schistocytes	Nucleated red cells
Kiwi cytes	Pistocytes	Nuclear free red cells
Macrocytes	Teardrop Poiks	Anitocytes
Microcytes	Dropped pikelets	
Acanthocytes	Stippled cells	

Registered Medical Laboratory Technologist' Badge

At the 1984 Annual General Meeting Council was requested to investigate introducing a badge for Registered Medical Laboratory Technologists who are Fellow or Associates of the Institute.

It was the view of Council that the badge should carry the logo of the Medical Laboratory Technologists Board rather than the Institute and subsequently approval was granted by the Board subject to the provision of awarding a badge be incorporated into the rules of the Institute.

This requirement was met at the recent General Meeting by amending Rule 7 as follows:-

7 (c) Every Fellow or Associate who is registered with the Medical Laboratory Technologists Board, shall be entitled upon proof of registration and payment of the appropriate fee, to receive a Registered Medical Laboratory Technologists badge' from the Institute.

(d) Every diploma and badge shall be issued under the seal of the Institute and shall be in such form as the Council may from time to time determine, and shall be the property of the Institute, and upon the member ceasing to be a member shall be recoverable on demand.

A badge (above) has been approved by Council and is now available for purchase in accordance with the above rules. The badge is blue with gold print and measures 35 x 30mm. The cost of the badge is $5.50 including postage and G.S.T.

If you wish to make application for a badge then please complete the form below:-

APPLICATION FOR REGISTERED MEDICAL LABORATORY TECHNOLOGIST BADGE

NAME (Block letters): .....

MAIDEN NAME: .....

ADDRESS: .....

.....

YEAR QUALIFIED: .....

"I certify that I am
a) A Fellow or Associate of the New Zealand Institute of Medical Laboratory and
b) I am registered with the New Zealand Medical Laboratory Technologist Board"

SIGNED: ..... DATE: .....

Fee enclosed: $5.50 payable to the NZIMLT.

Forward to Mr B. T. Edwards, Hon. Secretary, NZIMLT, Haematology Department, Christchurch Hospital, Christchurch.

PATIENT DETAIL LABELS

FAMILY NAME
GIVEN NAME
NICKNAME
PATIENT NO.
WARD
DATE OF BIRTH
STARSIGN
FAVOURITE COLOUR
SEX
FREQUENCY OF SEX
NAME OF LAWYER

WHITE CELL DIFFERENTIAL LABELS

PROMYELOCYTES	EOSINOPHILS
AGAINST MYELOCYTES	BASOPHILS
METAMYELOCYTES	DOHLE BODIES
BAND NEUTROPHILS	BODIES ON THE DOLE
SEGMENTED NEUTROPHILS	LYMPHOCYTES
BLAST CELLS	VARIANT LYMPHOCYTES
DAMN CELLS	DEVIANT LYMPHOCYTES
SMEAR CELLS	TRANSEXUAL LYMPHOCYTES
TWIRL CELLS	LYMPHOCYTES WHICH
MONOCYTES	IN THE CLOSET
STEREOCYTES	

INSTRUCTIONS

1. Cut out labels to compliment basic printed parameters to your desired design.
2. Select carbon paper type (firm, medium or rock hard) and select and position appropriate spacing hole.
3. Send prototype form into Board Office for approval.
4. Wait 3 months, then get a rejection from the "Haematology Report Form Standardisation Sub Committee".
5. Re-design and re-submit.
6. Form will be put out to tender.
7. Cheapest tender will be from a small printing company in Bolivia.
8. Expect to obtain first shipment of forms sometime in 1990, having been mis-labelled as llama skin coats and sent to the Antarctic.

NEW PRODUCTS & SERVICES

HOOD FOR PROTECTION FROM TOXIC SUBSTANCES

Sold in New Zealand through Kempthorne Medical Supplies, the CAPTAIR is a fume hood equipped with a filtration system so efficient that the air it recirculates into the room is totally pure. Air is purified in the room at a rate of 98.29 ft^3/min. CAPTAIR hoods are mobile, modular, and economical. The CAPTAIR does not need any ductwork. No installation is required and it is usable without delay. These hoods are for handling toxic substances such as toluene, hydrogen sulfide, alcohol, xylene, ethylene chloride, pyridine, formaldahyde, and osmium tetroxide. The hoods are particularly useful when a problem with toxic gases (solvents, acids, fumes, odours) occurs. CAPTAIR do not consume heat or cool air. They have been sold in Europe and Japan since 1970, and 20,000 are in service throughout the world. A detailed product bulletin is available from Kempthorne Medical Supplies, P.O. Box 1234, Auckland or **circle 105 on readers reply card.**

MISTRAL 3000E: NON-REFRIGERATED BENCH-TOP CENTRIFUGE

The Mistral 3000E is a non-refrigerated centrifuge with 3 litre capacity for bench top or trolley operation. With angle rotors the maximum RCF is 6030g at 6000rpm. Using the 4x750ml

ELI LILLY MICROBIOLOGY SCHOLARSHIP

This award, consisting of $500 kindly donated by Lilly Industries (NZ) Ltd, is to be used **either** for the purpose of funding a research project which cannot otherwise be undertaken or to attend an overseas scientific meeting. The scholarship is open to all financial members of the NZIMLT currently working in the field of Microbiology. Applicants for the Scholarship must apply on the official application form available from the Secretary of the NZIMLT.

Acceptance of the Scholarship will require the recipient **either** to prepare an article for publication in the NZIMLT journal relating to that research **or** prepare a full report on the meeting attended for publication in the NZIMLT journal.

Applications close on **1 July 1987** with the Secretary, NZIMLT, Haematology Dept, Christchurch Hospital, Christchurch. The successful applicant will be announced at the Annual Scientific Meeting.

NZIMLT SCHOLARSHIP

This award, consisting of $500 donated by the NZIMLT, is to be used **either** for the purpose of funding a research project which cannot otherwise be undertaken **or** to attend an overseas scientific meeting. The Scholarship is open to all financial members of the NZIMLT. Applications must be made on the official application form available from the Secretary of the NZIMLT.

Acceptance of the Scholarship will require the recipient **either** to prepare an article for publication in the NZIMLT Journal relating to that research **or** prepare a full report on the meeting attended for publication in the NZIMLT journal.

Applications close on **1 July 1987** with the Secretary, NZIMLT, Haematology Dept, Christchurch Hospital, Christchurch. The successful applicant will be announced at the Annual Scientific Meeting.

OUTSTANDING

The new dispensing wonder from Metrohm

The 665 Dosimat is the optimum aid for the universal handling of liquids in the laboratory. Extremly high precision of 0.1% for use in:

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- dosing
- pipetting/aliquoting/diluting
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- long-term dispensing (‹electronic dropping funnel›)
- tandem dispensing with two 665 Dosimats, and as
- titration stand for Metrohm titrators

Keyboard operation, RS 232C interface, digital/analog output, nine dispensing programs.

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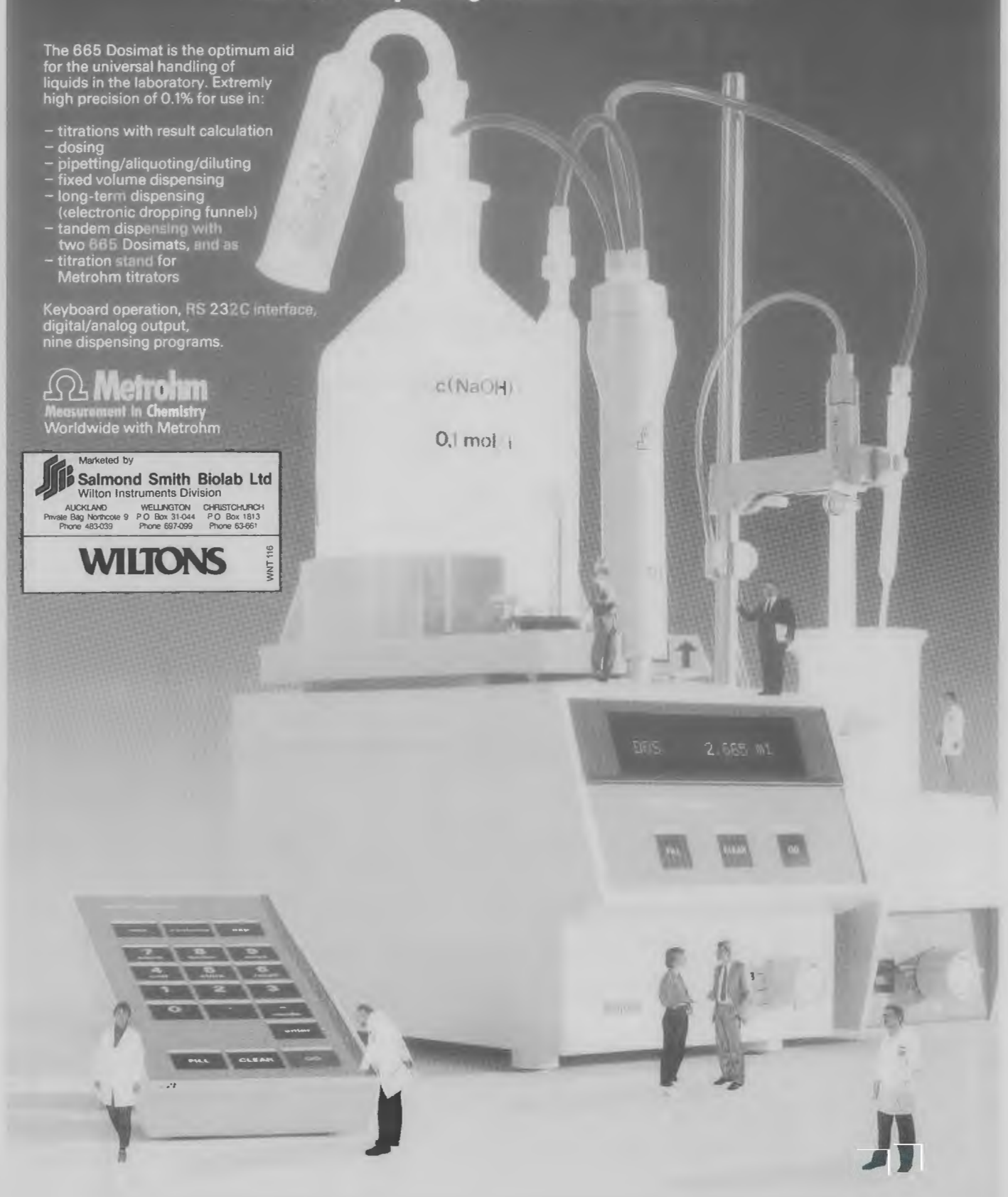
Phone 483-039	Phone 697-099	Phone 63-661

WILTONS

WNT 116



or **Circle 122 on Readers Reply Card**

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LARGE CAPACITY 2-DOOR MEDICAL FREEZER

Direct Cooling · Constant −35°C

· Large Capacity 482 Liters

Sanyo's new MDF-0535 low temperature medical freezer can store human plasma and a wide variety of test samples at a constant ideal temperature of −35°C. Inside the cabinet, 5 racks with direct-cooling type evaporators on their under-side, assure uniform temperature within the inner compartments and a stable refrigeration characteristic. An alarm system gives visible and audible warning in the event of power failure or dangerous inner temperature rise.

482ℓ

−35°C

KMS

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AUCKLAND P.O. Box 1234 Ph: 775-289

or **Circle 123 on Readers Reply Card**

windshielded rotor, it can spin 3 litres in a sealed condition to over 3000g.

The Mistral 3000E will accept all rotors available for the Mistral 3000 to the same maximum speed capacities.

Microprocessor Controls ensure precise, concise measurements and simplicity of use. The well designed control panel means it is easy to set-up all parameters and the bright easy to read LED display enables all parameters of a given run to be accurately reproduced.

The Brushless Induction Motor means no carbon brushes to change and gives the powerful .5hp induction motor long life reliability, quiet and smooth operation together with fast acceleration and accurate speed control — even at low speeds.

10 programmable rates of braking, including brake-of — an essential feature when centrifuging particles that might easily be re-suspended by violent braking effects.

0-999 minutes timer with a 'hold' mode if timed run is not required.

A detector enables the microprocessor to identify the rotor in use as soon as it begins to rotate. This enables the operator to obtain a direct RCF reading at any time during the run and also means that the instrument will not allow speeds greater than that permitted for the rotor type.

Details of the last run can be retained in the instruments memory, even when power is turned off, ensuring greater run-to-run reproducibility.

The Mistral 3000E fully complies with all the specifications laid down in BS4402:1982. Safety features include: lid interlock, rotor imbalance detection and protection system; heavy duty steel guardring and counter balanced lid.

Accessories include approved sealed buckets, colour-coded tube adaptors for the most popular tube sizes and a selection of swing-out and fixed angle rotors — including large capacity 4x750ml swing-out windshielded and non-windshielded rotors.

As well as bench use, the Mistral 3000E can also be used with its own free-standing trolley making it ideal for convenient under-bench stow-away.

Micro-titre centrifugation is easily carried out with the micro-titre carrier system used with the non-windshielded 4x750ml rotor. (2 plates per carrier).

For further information, please contact the New Zealand distributors, Kempthorne Medical Supplies Ltd or **circle 106 on readers reply card.**

CO_2 INCUBATOR PROVIDES PRECISE CONTROL OF TEMPERATURE AND CO_2

Sanyo medical and laboratory equipment have produced a water-jacketed heating system which accurately maintains inside temperature at an optimum level while electronic devices automatically control temperature and CO_2 contents of the unit. Digital indicators let you know the inside conditions at a glance, and if any irregularities should occur, a built-in alarm system notifies you immediately.

The cabinet interior is made of stainless SUS-304 steel with rounded corners, and the shelves, shelf supports and shelf support tabs are easily removed to allow thorough cleaning and disinfection of the cabinet.

The humidity inside the cabinet can be controlled by checking the humidity level indicator and changing the number of adjustment pans. This prevents dew from forming inside the cabinet.

Conventional CO_2 sensors are greatly affected by humidity and temperature. However, Sanyo incubators are equipped with a compact dehumidifier system which maintains the temperature and humidity inside the CO_2 detector at a constant level, affording precise measurement, control and display of the CO_2.

Digital temperature and CO_2 controls prevent any error while digital displays of inside temperature, CO_2 and humidity provide clear, easy-to-read values.

Other features include: Water-jacketed heating system, PI-controlled electronic temperature controller, Temperature alarm system, CO_2 alarm system, Humidity alarm system, Power failure alarm system, Automatic electronic data recorder. (Optional).

For further information, please contact the New Zealand distributors, Kempthorne Medical Supplies Ltd or **circle 107 on readers reply card.**

THE MINUS 135°C FACTOR

With the recent increase in activity in the fields of medical research and biotechnology, there has arisen a corresponding increase in need for specialised systems of low-temperature storage and preservation. In order to keep apace of this need, Sanyo, a world leader in refrigeration technology, has introduced a new freezer which lowers the limits of ultra low-temperature storage. The MDF2135 Series is able to achieve and stably maintain a remarkable temperature of -135°C. Designed to meet the critical standard of medical and laboratory applications, it provides the ideal environment for long term storage and preservation of all bio-tech specimens such as cell components, blood, sperm, virus and bacteria parts, bone marrow and protozoa. Since the primary constituent of cells and tissue structures is water, when they are preserved by freezing, crystal formation occurs resulting in chemical and physical changes. This can often mean deterioration in the quality of the cell or specimen.

It has been well established, however, in research conducted both in the United States and Europe, that below -130°C (or the point of recrystallisation) ice crystals become amorphous and damage to cells is minimised.

In order to take advantage of this phenomenon, Sanyo developed the ultra-low temperature -135°C freezer. Because it maintains a constant inner temperature of -135°C, it provides a long term storage environment that was possible here before only in a liquefied nitrogen medium.

However, since there is no need for constant replenishment of a liquefied nitrogen supply, upkeep is greatly reduced. Its additional merits are low running cost and uniform temperature throughout the inner compartment. Designed with convenient low profile, it offers easier and more stable long-term storage, below the point of recrystallisation, than was ever possible before.

For further information, please contact the New Zealand distributors, Kempthorne Medical Supplies Ltd or **circle 108 on readers reply card.**

PORTALS DEMINIMASTER: FS9000 WATER DEMINERALISER

Pure water at a turn of a tap.

The Portals Deminimaster demineraliser operates on the mixed-bed ion exchange principle making highly purified water available at minimum cost for even the smallest requirements. The Deminimaster is used in modern laboratories, processing plants, battery service stations, hospital, pharmacies, households, etc.

— Produces water far purer than distilled water
— No installation cost, simply connect to tap.
— Fully portable.
— High impact plastic moulded body.
— No regeneration sequence — simply replace resin.
— No power required.
— Compact.
— Push button conductibility meter for water quality check.

For further information, please contact KMS or **circle 109 on readers reply card.**

THERMOSTATIC WATER BATH FOR THE CLINICAL LAB.

The Grant FE water bath has a couple of features which make life easier in the clinical laboratory. Firstly, it has a five position rotary switch which allows the user to select from four preset temperatures, or the usual adjustable dial. Standard incubation temperatures are therefore very easy to set, and ensure reproducable incubation runs.

The four preset temperatures are factory set to 25, 30, 37 & 56°C, but the user can change these to any required temperature between 0 & 80°C with the aid of a screwdriver.

The second notable feature is the remarkable uniformity of ±0.015°C. This is the maximum temperature difference between any two points, at any termperature in the controller range, over a 24 hour test period, both unloaded and fully loaded tank, with ambient temperature fluctuations of ±10°C and supply voltage fluctuations of ±10%. This uniformity is achieved by the special Grant circulation system. Liquid is circulated by a propeller, underneath a circulation tray and up at the end of the tank farthest from the heater. This produces a uniform horizontal flow through the whole bath.

With this sort of rigorous testing you can be assured of excellent uniformity in practice.

Grant water baths are guaranteed for 3 years, parts and labour.

FE baths are available in 15, 35 and 50 litre tank sizes. For more information contact the Scientific Products Division of Salmond Smith Biolab **or circle 115 on readers reply card.**

DOCUMENTATION OF INCUBATION RUNS

A simple device for monitoring, recording and plotting incubation temperatures is available from Grant U.K. The Squirrel meter/data logger can record the temperature at intervals from 1 per second upwards. An ideal interval for incubation monitoring would be 1 reading per minute.

The Squirrel can be used for 1 through to 16 cabinets, or if it is desired to check uniformity, several sensors could be placed in one cabinet.

Incubation times vary widely, and the capacity of the data logger depends on the number of cabinets monitored. The longest run possible on a single cabinet is 22 days. Typically, four cabinets could be monitored for runs up to 133 hours, with each cabinet being sampled once per minute.

The efficiency of the whole system comes in with the computer interface. An HX20 computer with software interfaces directly with the data logger, produces a graph and/or digital printout, finds maximum & minimum temperatures, scans for threshold readings, zooms in on a selected time period and files data for future reference. Alternatively, software is available for many other microcomputers, e.g. Apple 2E, IBM PC, Commodore, Hewlett Packard.

Finally, other parameters besides temperature can be monitored. Sensors and models are available for humidity measurement of the incubation environment and pH measurement of the culture media, and even logging of the times and dates of the incubator door being opened.

For further information, contact the Scientific Products Division of Salmond Smith Biolab or **circle 114 on readers reply card.**

HAEMATOLOGY STAINS

Sigma Diagnostics Wright stain Cat. No. WS-128 can now be used on "Hematek Automated Slide Stainers".

Hematek used can now take advantage of the benefits offered by Sigma Accustain.

- Superior staining characteristics
- Reproducible results
- Lot to lot consistency
- Comparable Manual and Automated Staining
- No reagent precipitation problems
- Unusually stable reagents
- Defined reagent composition
- Economical

Formulation is prepared in a manner recommended by NCCLS and colourations obtained are consistent with those recommended by NCCLS.

For further information contact Salmond Smith Biolab or **circle 113 on readers reply card.**

TOTAL PROTEIN TEST KIT

Total Protein Test kit including liquid standards is available from Biorad Clinical Division.

Based on the ability of protein molecules to form a complex with an acidified dye reagent, this test kit measures total protein concentration in Urine, Cerebrospinal fluid and serum. Protein levels are determined by allowing the sample to react with Coomassie Brilliant Blue dye for 10 minutes. The absorbance of the sample and that of a standard is then measured with a spectrophotometer. When a monochromatic wavelength method is used, a protein concentratin up to 70mg/dl; when a bichromatic wavelength method is used linearity is extended to 120mg/dl. The test kit includes 3 liquid protein standards containing 20,45 and 70mg/dl of protein. The proportions of human serum albumin and human globulin in the standards are the same as those found in spinal fluid specimens, making them ideal for determination of CSF protein.

For further information contact Salmond Smith Biolab or **circle 112 on readers reply card.**

SYPHILIS DIAGNOSIS

Mercia Diagnostics have just released a new product in their Captia range. This kit is an IgM class, antibody capture enzyme immunoassay for the detection of IgM antibody to Treponema pallidum, (the causative organism of syphilis).

A monoclonal antibody/bioton/streptavidin tracer system is incorporated in the assay ensuring excellent specificity and sensitivity. The micro strip presentation allows total flexibility of specimen batch size, and the assay can be either fully automated or performed manually. Simultaneous reagent addition reduces 'hands on' time to a minimum and the assay can be completed in under 3 hours.

Extensive trials of the assay have shown that Captia Syphilis-M exhibits a high degree of correlation with IgM FTA-Abs. The speed and convenience of the assay will enable its wide application as a diagnostic aid to confirm congenital infection, monitor the course of the disease and the efficacy of treatment.

For further information contact Med-Bio Enterprises or **circle 101 on readers reply card.**

TRICHOMONAS DIRECT SPECIMEN TEST

Integrated Diagnostics have recently released a diagnostic test kit for the detection and identification of Trichomonas vaginalis. The kit contains a cocktail of fluorescein isothiocyanate labelled monoclonal antibodies. These are directed against the Trichomonas membrane, cytoplasm, flagella and nuclei. This reagent reacts with either the intact organism or its antigenic remnants.

This method of identification of Trichomonas infection offers a sensitivity which is several fold better than the conventional wet mount method. The test does not suffer from nonspecific staining of other vaginal organisms.

The total test time is 30 minutes. Samples which are collected several days prior to testing will still give a positive result if T. vaginalis is present on the slide.

For further information, contact Med-Bio Enterprises or **circle 102 on readers reply card.**

BLOOD BANKING REAGENTS

Med-Bio Enterprises can now supply the Immucor range of blood banking reagents. These include the usual range of ABO and Rh antisera, monoclonal anti-A and monoclonal anti-B, antibody potentiating reagents, and anti-human globulin reagents, both polyspecific and monospecific.

Immucor also has available a good range of the rare antisera. including some monoclonal antisera against the Lewis group.

For further information contact Med-Bio Enterprises or **circle 103 on readers reply card.**

IMPROVED OESTRADIOL ASSAY

The revised version of the Diagnostic Products Corporation Oestradiol assay has been in use in the United States, Europe and Australia for several months. This new coated tube assay has shown itself to be outstanding, particularly for IVF work where accurate results are required very quickly. This method has not only found favour for use in human assays, but also with workers in veterinary IVF programs where the assay is playing a significant role in helping save some endangered species.

In answer to customers requests for a double antibody oestradiol assay, DPC has produced such a kit. This new assay is now available and will be of interest to those who are involved in infertility studies.

For further information on either of these kits, contact Med-Bio Enterprises, or **circle 104 on readers reply.**

DENKA SEIKEN MICROBIOLOGY
AND VIROLOGY PRODUCTS

Denka Seiken Co. of Japan manufacture a wide range of bacterial antisera. They have antisera which is directed against most of the common bacteria, but they also produce antisera against some of the rarer bacteria. Many of their antisera have been evaluated in New Zealand and found to be of a very high quality. Most of the common antisera are available from stocks held by their New Zealand distributor, Med-Bio Enterprises.

Denka Seiken Co. also produce complement fixation antigens, control antigens and reference antisera for viral testing. They also have a range of products for viral haemagglutination-inhibition testing. For further information on these products or a Denka Seiken catalogue, please contact Med-Bio Enterprises Ltd., P.O. Box 33-135 Christchurch 2, Petone (03) 381-020.

BECKMAN ADDS PREALBUMIN TO ARRAY™, ICS™ REAGENT ASSAYS

Beckman Instruments, Inc. introduced a Prealbumin reagent assay for Beckman's new Array™ Protein System, Auto-ICS™ and the ICS™ Immunochemistry System. Prealbumin is an indicator of both subclinical and marginal protein-calorie malnutrition and the patient's response to therapy.

Prealbumin is a more sensitive marker of protein synthesis than albumin because its rapid two-day half life (compared to albumin at 20 days) produces a timely picture of dynamic protein metabolism. Premature infants, patients with cancer, liver disease, kidney disease, diabetes, digestive and absorption diseases, severe trauma or burns and the obese and elderly are at greater risk for developing protein malnutrition; prealbumin is a valuable indicator of continuing nutritional adequacy. Prealbumin is useful as a prognostic aid in surgical patients and in assessing total parenteral nutrition (TPN) therapy. As a negative acute phase reactant, it may be used in conjunction with C-Reactive Protein and alpha-acid glycoprotein to assess inflammation. It is more sensitive than albumin to indicate the nutritional adequacy of premature newborns.

The ICS Prealbumin assay with sensitivity to 1.2 mg/dL reports accurate and precise results in both adult and pediatric patients, in less than 15 minutes, a clinically significant time frame. It is packaged as a 100-test pack of stablised liquid reagents and a single level calibrator to run on the Array™ Protein System, Auto-ICS™ or ICS™ II analysers. The test protocol is consistent with other Beckman protein assays and reagent shelf life is 18 months.

As part of Beckman's commitment to offering the clinical laboratory testing capabilities to screen, identify and quantitate proteins, Prealbumin is part of a complete line of protein assays. Others available are Properdin Factor B, C3, C4, IgA, IgM, IgC, Albumin, Transferrin, $Alpha_2$-Macroglobulin, Haptoglobin, Ceruloplasmin, $Alpha_1$-Antitrypsin, $Alpha_1$-Acid Glycoprotein, C-Reative Protein and Rheumatoid Factor.

For further information contact Sonatec or **circle 110 on readers reply card.**

SPECIFIC PROTEIN ANALYSIS: NEW BECKMAN DEDICATED PROTEIN SYSTEM OFFERS HIGH THROUGHPUT AND COST EFFICIENCY

Beckman Instruments Inc. introduced a fully automated analyser dedicated to the testing of specific proteins, the new Beckman Array™ Protein System. The system uses rate nephelometric methodology, state-of-the-art technology and on-line capacity for 20 specific proteins. For maximum efficiency, the Array optimises throughput, reduces dedicated technologist time and minimises calibration. With this new high-volume protein system, Beckman now provides systems, reagents and controls for every special chemistry laboratory.

The new system allows random access test selection from up to 20 specific proteins, including kits for immunoglobulins, complement proteins, acute phase reactants, such as quantitative C-Reactive Protein, transport proteins and a test for quantitative Rheumatoid Factor. Two new kits from Beckman provide direct measurement of apolipoprotein A_1 and apolipoprotein B in place of low or high density lipoprotein cholesterol in the assessment of cardiac risk.

Users obtain collated patient profiles from a single patient sample. With automatic antigen excess checks and out-of-range retesting, the system delivers precise results without repeats. With no incubation requirements and time-sharing delays, the system provides rapid turnaround of patient reportable results.

Simultaneous measurements provided by the Array's dual optics, plus continuous loading of samples, maximise throughput for even the highest volume protein laboratory. Single point calibration, required only once every two weeks, optimises efficiency.

The Beckman Array Protein System consists of the analyser, a keyboard, CRT display, and printer.

For further information, contact Sonatec or **circle 111 on readers reply card.**

NEW AGENCY

E.C. Gough Limited are pleased to announce their appointment as official New Zealand agent for Sekonic Company Limited.

Sekonic Company Limited manufacture a wide range of industrial and laboratory chart recorders. These models include panel mount analogue chart recorders, digital/analogue recorders and multi-channel flatbed recorders.

Sekonic have also recently expanded their range of digital plotters to include models capable of handling A1 and A2 sheets. A smaller range capable of handling A4/A3 paper (2 models) is also available. All of the new Sekonic digital plotters are compatible with HPGL (Hewlett Packard Graphics Language) which makes them compatible with most of the software packages available on the market today.

For more information please contact the Electronics and Instrumentation Division of E.C. Gough Limited, P.O. Box 22-073 Christchurch 8032.

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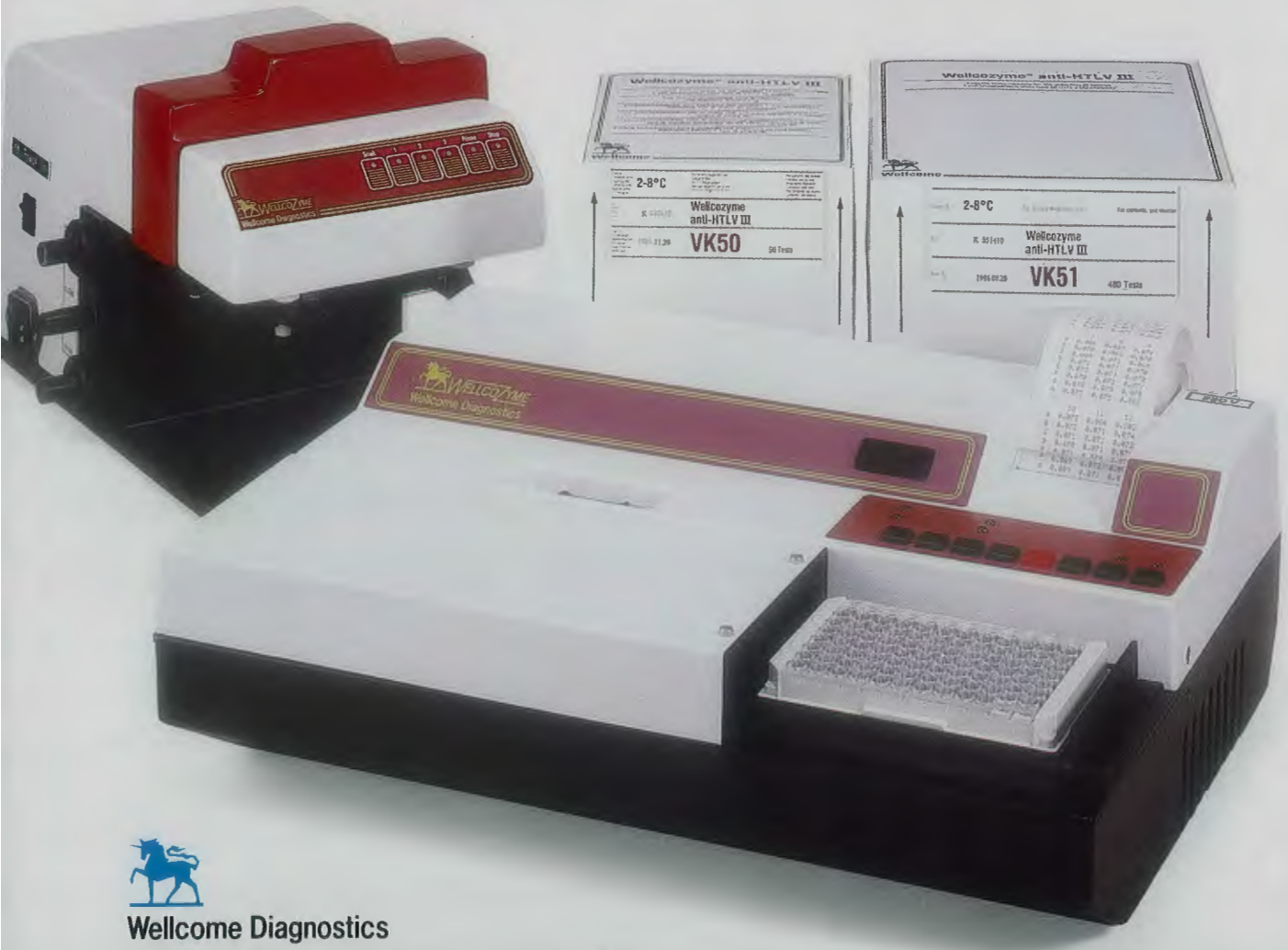

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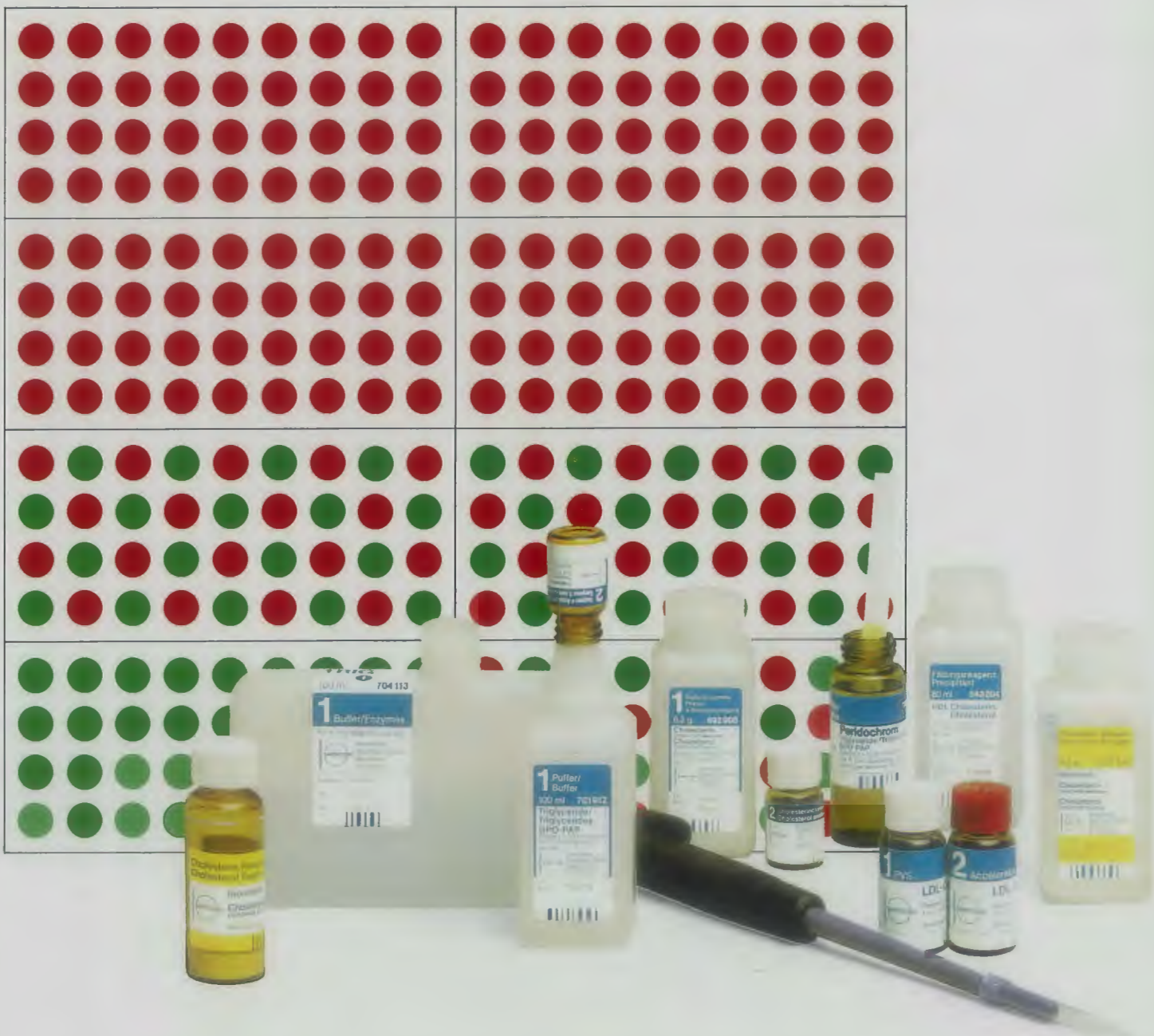

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