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THE HEALTH ENGINEER



THE JOURNAL OF
N.Z. INSTITUTE OF HEALTH ESTATE AND
ENGINEERING MANAGEMENT

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The Journal of the NZ Institute
of
Health Estate and Engineering Management

Volume 2 No 8 Spring 2002

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Cover Photograph :- Auckland, the conference city, a view of the skytower from the viaduct harbour.

The health and viability of any organisation depends on good communications. Our objective is to produce a good quality health engineering magazine. The magazine should inform readers, it should provide a forum for discussion, encourage interest in all aspects of the technical side of health facility management in its widest sense.

PRESIDENT'S COMMENT

The Health & Disability Sector Standards have been topical on a number of occasions recently, with October 2004 is the deadline for all organisations to meet the requirements of these standards. This may be achieved either by audit to the Standards or as a consequence of a Quality Health Audit utilising their recently released Audit guidelines.

As I was perusing the recent Quality Health New Zealand Newsletter, I noted the significant shortfall of organisations that do not have any form of accreditation. I was also reminded of a quote that has sometimes been associated with Quality management processes - "the Enlightened and the Desperate".

Are you part of an organisation that is either Accredited or moving towards a system of Accreditation against an approved set of standards, or will there be the "Desperate" call 3 months before the deadline asking to book an audit and then finding there is many more months work to even get to the point of being ready for the audit.

I would also highlight the fact that an accreditation survey will not give an in depth scrutiny of your systems and processes. I would encourage each of you to explore both ISO9001 Certification for your service and also utilising your colleagues in other centres to establish a system of Peer review.

Our Conference in Auckland this year is rapidly approaching and has promise of being a most worthwhile event. This is the first time that we have had a 2 day Biomed Conference in conjunction with the Facilities Engineers, and can only help to strengthen the relationship between those involved with Services provision and the Clinical application of those services. We must also provide a vehicle for the wider Biomed community to be included within the umbrella of our Membership rules.

The ongoing participation in Standards activity has provided an opportunity for Institute members to develop documents that will be of use to the wider user community for which they are intended. Elsewhere in this publication you will have a chance to read an update on the three core standards that a number of us utilise. Final publication of these documents has been somewhat frustrated by difficulties experienced within the Standards Australia system.

Some of you may have recently come into contact with a consultative document proposing a joint agency, combining the Therapeutic Goods Agency (TGA - Australia) and Medsafe (New Zealand) and the consequent requirement for all Medical Devices sold in New Zealand and Australia to be registered with the new Agency. The philosophy of the agency and product registration is to be applauded. There is however some work to be done to ensure that all involved are linked into the process. It is equally vital that it will be a truly joint agency with New Zealand participating as equal partners.

My comments this time, I trust have prompted a number of you to make sure you are up to date with what is going on with 'Quality' in your organisation. It should be an activity that is an integral part of your day to day management activity, not something that has a special slot once a month or maybe less frequently.

Engineering Associates Registration Board.

At recent meetings the Board has discussed the fact that the numbers of new applicants have dropped away and that the total number of Registered Engineering Associates continues to fall. This is causing great concern to members of the Board.

The lack of new applicants applying for registration is primarily the result of the cessation of the old N.Z. Certificate of Engineering (NZCE) coupled with a policy by previous governments in not supporting any apprenticeship programme. The direct result of this policy is that there are no young applicants with mechanical engineering skills; very few with electrical/electronic skills while civil engineering is the only exception, with the numbers applying making up the largest percentage by far. The recent Labour Government has, to its credit, initiated moves to encourage apprenticeships across the full range of engineering disciplines.

The situation regarding qualifications is much more confusing. The replacement for the NZCE, the National Diploma(s) in Engineering (NDE) does not seem to have been fully accepted throughout the country. Alternative qualifications are available from Industry Training Organisations (ITOs), polytechnics with their own diplomas and private training establishments with diplomas and certificates. To say the least, the situation is very confused. Polytechnics are concerned about the small number of students enrolling in courses; and because the NDE courses in civil, mechanical and electro-tech engineering disciplines have little common core they have to be taught separately. The smaller polytechnics don't have the numbers to run engineering diploma courses. Students therefore have to move to a large city if they want to study for engineering technician qualifications. Until this situation is rectified there will not be any appreciable increase in REA applicants.

The development of the National Diploma in Engineering began seven years ago and it is time the market had a clear picture of what technician engineering qualifications are available, their relative worth and which ones are recognised by IPENZ as meeting a national standard. IPENZ can internationally benchmark these qualifications, but not until some of the issues outlined above are resolved.

On the 1st July the Chartered Professional Engineers Bill came into force and the Engineers' Registration Act will cease to have effect from the end of this year.

IPENZ are now engaged in compiling a current competence register for Chartered Professional Engineers. Since they now have three grades of membership that are attained by demonstrations of competence i.e. Member, Technologist and Associate, IPENZ are now canvassing its members as to whether it provides a competence register of Technologists and Associates as an addition to the CPE register.

If this proposal does eventuate it is generally agreed that the EARB will suffer a marked reduction in registrations. It is also considered that the Associations contributing members to the EARB may also suffer. Who would want to add a second organisation's costs on top of whatever IPENZ charge for membership and registration.

The Engineering Associates Registration Board is fully aware of the situation outlined above and has discussed ways to develop the REA qualification. Some of the proposals are outlined below :-

- Promote and market REA as the qualification for technician engineers.
- **Develop a specific campaign to encourage non REA members of "our associations" to apply for registration.**
- Develop a promotional campaign to encourage holders of NZCE and other equivalent qualifications, also to encourage students to aim for REA as the qualification of choice.
- Develop partnerships with tertiary education institutions and ITOs, and support technical engineering education developments.
- Actively support the government's lifelong learning objectives and harness the pool of experienced (and retired) REAs to inspire and assist individuals to develop their technical engineering capabilities and have them recognised to the greatest extent possible.
- Establish an electronic network for communication to/between technician engineers. (Establish technical interest groups)
- Monitor and comment on legislation developments particularly in the technical/trade and employment arena (electrical, gas, fuels, plumbing, surveying, building, transport, aviation, shipping etc.)

J. Logan
Board Member.

**57th Annual Conference
Auckland - City of Sails**

**Sustainable Healthcare Support
A Holistic View**

7th & 8th November 2002

Venue:-

**Carlton Hotel
Mayoral Drive & Vincent St
Auckland**

Conference Sponsors:

BECA Buildings - a division of Beca Carter Hollings & Ferner Ltd

CASS Medical

FISHER & PAYKEL Healthcare

Contact Details

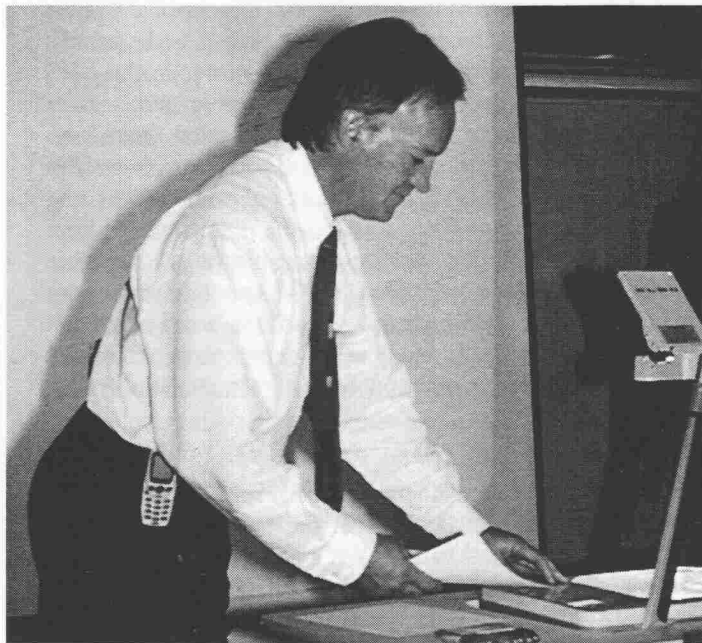
Your registration forms should have been returned no later than 10 August 2002 to:-

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Telephone 09 356 0925 Ext 8919 (daytime)
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Of Interest To Those in the Health Sector including:

- . Facilities Managers
- . Maintenance Managers
- . Maintenance Contractors
- . Services Engineers
- . Biomedical Engineers
- . Engineering Consultants
- . Property Managers



Some photos from the Wellington Conference, clockwise from top left :-
1) Alan Cameron, Tom Sawyers, Stewart Dunlop and Bob Duncan- Tom is the one with the candleabra growing out of the top of his head.

2), Jane and Peter Duncan. Good to meet old friends!

3) Nigel Caigon, Programmed Maintenance Services, with his presentation

4) Glen Reynolds, Australian ANZEC delegate.

5) Andrew Patterson and Bruce Nosedo enjoying ? dinner!

SUMMARY UPDATE ON BIOMEDICAL SERVICE TECHNICIANS COURSE DEVELOPMENT

Meeting held on 23rd May 2002

At the meeting were representatives from

- TOPNZ
- TAFE - Australia
- Biomed Community - Australia
- Biomed Community - NZ

Bill Shields, the Training and Workforce Development Officer of Waikato DHB, has moved on to a new job and Tony Blackler from Canterbury DHB has agreed to be involved in the process.

The project has stalled for some time due to TAFE's preference to predominantly use an Australian course development company. This situation has been resolved and all the course development material will be facilitated by the TOPNZ in Wellington. Given this decision I am now confident that the project will now be driven and completed.

The other major change is that due to a funding reduction from TAFE in Australia, the course content and depth has been reduced from the original 12 modules. It has been made quite clear that this is an Australian funded project, and while New Zealand input is welcomed and accommodated wherever possible, there is no scope for us to influence the basic course structure of two modules with overall content agreed after industry consultation. The course format has been changed from the original modular concept structured around disciplines e.g. electronic, mechanical, etc and now consists of two modules:-

- Anatomy, physiology and infection control
36 hours study
- Medical equipment principles, 72 hours study

These two modules will form a stand-alone entry qualification for new staff coming in to the industry and will be pegged around Level 4 in the Australian Electrotechnology qualifications. It is envisaged that it will also form part of their diploma activity in the future.

New Zealand and Australian qualifications have a similar system for grading levels of attainment, thus enabling NZQA to recognise the TAFE qualification directly. New Zealand would pick the course up as a recognised stand-alone qualification - Certificate of Attainment, with perhaps future links to the NZ diploma is planned. TOPNZ will follow up with the NZ Qualifications Authority to benchmark this qualification in NZ.

The course will comprise approximately 108 hours of learning and will be a mixture of learning resource book and interactive CD. There is the potential for an advanced course with more modular mix and match in the future but we need to get this one under our belt first.

At the meeting, content and depth of material was agreed and TOPNZ are now working this into their course format. Technical writers will be required. A number of Australian Biomedics have been approached. If you are interested in contributing please contact me.

Once the content material is written and incorporated into the course, the draft workbook and CD will be circulated for technical review. Realistically, time-line for having this work completed will not be before the first quarter in 2003.

Bill MacDougall

The following article was contributed by Tom Sawyer and from his covering notes he wrote it in late 1994 soon after taking up his appointment with the West Coast Crown Health Enterprise, as it was then known. How relevant is it to today's health service?

PHYSICAL RESOURCES

DIRECTION OF SERVICE DEVELOPMENT

1. Introduction

This paper is written to provide a direction along which the Physical Resources function could develop, to meet the future needs of District Health Boards. It is specifically written with the smaller organisation in mind. The format is kept relatively simple and concentrates on the layer below the Providers of Health Services. This is in fact the layer that the resources come from.

2. Buyers of Health Services

Currently the buyer of public Health Services appears to have reverted back to a Central authority.

3. Providers of Health Services

Under the general control of District Health Boards services are provided by:

- Private and Voluntary Providers (e.g.: GPs, Union Health Clinics & Plunket).
- What in the last change were Crown Health Enterprises (e.g.: Large Public Hospitals).
- Community Trusts (e.g.: Small Maternity Hospitals).

The range of services that could be provided is expanded in the next section.

4. Treatment Services (Generic Services)

Services Producing a Health Output can probably still be generally categorised as follows. One hopes they have measurable outputs that enable the desired outcomes to be met. Another way of identifying these services would be to say they are

the services purchased by the Government in the public system.

- 1) COMMUNITY AND RURAL HEALTH
- 2) MENTAL HEALTH
- 3) MAORI HEALTH
- 4) DENTAL HEALTH
- 5) PUBLIC HEALTH (including HEALTH PROTECTION AND PROMOTION)
- 6) INTELLECTUAL, AGE RELATED, PHYSICAL/SENSORY DISABILITY SUPPORT SERVICES
- 7) MATERNITY SERVICES
- 8) WELLCHILD SERVICES
- 9) A&E
- 10) SECONDARY/TERTIARY MEDICAL AND SURGICAL SERVICES

5. Support Services

These are the Resources/Services that have to be Employed by the publicly provided Health and Disability services (Regional Hospital and Community Services), and deployed to produce the Health Outputs/Outcomes i.e.

- Resources Input Departments
- Skill and Knowledge Inputs
- Material Inputs
- Direct or Contract Labor can be used

- 5.1 Central Sterile Supply
- 5.2 Housekeeping/Catering
- 5.3 Laundry
- 5.4 Physical Resources - Estate Management, Maintenance/Transport
- 5.5 Supply
- 5.6 Pharmacy
- 5.7 Laboratory/Pathology
- 5.8 Physiotherapy / Occupational Therapy / Miscellaneous Therapy
- 5.9 Medical
- 5.10 Nursing
- 5.11 Planning / Marketing / Sales
- 5.12 Treasury / Accounts
- 5.13 Radiology
- 5.14 Clerical
- 5.15 Line Management

Figure 1 contains an accounting model which should readily allow for the direct analysis and control of Revenues and Costs.

Note that actual revenue budgets are held by the Generic Service directly responsible for a particular task. The expenditure budget is held by the Support Service department that is directly generating the cost. The Generic Service must negotiate with the Support Service to ensure they are getting the most cost effective and efficient result.

The next paragraph expands the services which could be supplied by Physical Resources or a Total Facilities Management Provider. A similar process can be used for the other Support Service Divisions. It is noted that some support services could get real income outside the CHE.

6 PHYSICAL RESOURCES - RANGE OF SERVICES

Some of a large range services which could be provided by Physical Resources are listed below. The size of the DHB will determine exactly what services can be provided.

- 6.1 Planned Preventive Maintenance programs and instruction sets.
- 6.2 Execution of Planned Preventive Maintenance programs.
- 6.3 Installation of Planned Maintenance programs.
- 6.4 Execution of Breakdown Maintenance.
- 6.5 Design and Project management.
- 6.6 Planning of new construction and installations.
- 6.7 Execution of new constructions and installations.
- 6.8 Engineering and statistical advice/analysis.
- 6.9 Engineering costing, and cash flow analysis.
- 6.10 Energy supply, advice and management.
- 6.11 Emergency systems management.

Figure 1

SIMPLE DHB ACCOUNTING ORGANISATION MODEL

This is a simple management accounting model for controlling the provision and utilisation of funds allocated to District Health Boards.

PUBLIC REVENUE PROVIDED FOR	COSTS AND REVENUE GENERATED BY
GENERIC SERVICE	SUPPORT SERVICE

- 6.12 Building services surveillance.
- 6.13 Security management.
- 6.14 Statutory/regulatory inspections.
(Accreditation)
- 6.15 Compilation and maintenance of asset registers.
- 6.16 Hire of engineering/technical/trade staff.
- 6.17 Hire of test equipment.
- 6.18 Supply of engineering stores/spare parts.
- 6.19 Training in engineering theory and practice
- 6.20 Specific systems training.
- 6.21 Property management.
- 6.22 Transport management.
- 6.23 Parking management.
- 6.24 Fire protection services.
- 6.25 Risk management.
- 6.26 Computer aided draughting.
- 6.27 Technical record keeping.
- 6.28 Computer aided maintenance.
- 6.29 Coordinated management of the above service.
- 6.30 Monitoring plant performance.
- 6.31 Monitoring maintenance performance.
- 6.32 Contact with other organisations for exchange of ideas/information.
- 6.33 Contact with other practical groups.
- 6.34 Integrating any of above services into one package.

7. PHYSICAL RESOURCES -

Principles of Operation

- 7.1 That it be set up as a self contained business unit.
- 7.2 That all costs of running the unit be clearly identified.
- 7.3 That at some time in the future, all or parts of the business can be sold to private enterprise.
- 7.4 That it be initially funded by the DHB.
- 7.5 That it have a Board of directors
- 7.6 That directors be paid meeting fees, and not be salaried.
- 7.7 That it performs the ownership function of buildings and land on behalf of DHB.

- 7.8 That while it is under DHB ownership it contracts services such as wages administration, accounting, advice from other support units funded by DHB. This principle can be over-ridden by Physical Resources negotiating with any DHB support service and demonstrating that the other service can be achieved more cheaply by an external contract or other means.
- 7.9 That Physical Resources be in direct competition with the private sector and be able to expand into the private sector and be able to expand into the private market. And that any capital required for this expansion be borrowed from normal commercial sources.
- 7.10 That as a business unit a nominal (realistic) sum be considered as the setting up capital of the unit. And a real annual return on this (nominal) investment be set by the Parent Company and achieved by the unit.

The Principles above can be employed for all the Support Service Units identified in paragraph 5 above.

8. MAINTENANCE UNIT

This unit would undertake Planned Preventive Maintenance and Defect Maintenance only.

Staffing would initially be sized to undertake an agreed contract with the local CHE. Staff numbers at paragraph - cater for this. If work was done for other than the CHE staff numbers would have to be increased accordingly.

The agreed contract could include :-

- Condition monitoring and reports of conditions out of tolerance.
- Full planned maintenance including repair of defects found.
- Repairs by request only.
- Maximum response time to repair requests.
- Specialised plant operations such as generator tests.
- Advice on plant maintenance costs.
- Provision of full time staff on-site.

A system of work priorities has to be formally agreed.

Planned maintenance instructions and equipment lists are available for most DHB buildings.

These need to be reviewed and agreed. This is not a long task as instructions in the first instance are generalised by building, ward, or area. More specific instruction sets are available for specialist equipment.

There would be no overseers / site engineers as they currently exist. Basic level supervision would be provided by team leader at each site.

There is a problem with demarcation between trades. Essentially all trades have the same basic skill of hand. Technical knowledge is biased in different directions. However as far as planned maintenance is concerned there are many tasks where it would be immaterial which trade specialty actually undertook the task. These should be known as CORE TASKS and be undertaken by any maintainer. Obviously some tasks can only be carried out by persons who are currently registered for that class of work.

The charge out rates would be dependent on whether the unit was owned by the DHB or running as a separate business. If the DHB owned the unit charge out costs should be such as to produce a zero budget for internal charges. Any charges to external authorities would have to make a normal commercial profit. Profit would belong to the owning organisation and would not be expended by the budget holder without specific approval of the Board of Directors.

To ensure all jobs are costed it is implicit that no work is started without a written requisition. In an emergency, maintenance staff can be advised by telephone but work will not commence until there is written confirmation. It is noted that currently departments try to avoid costs coming back to the originating department by getting the central telephone operator to make the request. Very obviously some jobs such as those done on central plant have to be considered as an overhead and would be a charge to management, or would need some other mechanism for re-allocation to actual users.

A Look into the Future of Computers and Communication.

It is a well-known fact that technical growth is doubling every year while we mainly think in terms of a linear growth. I have recently come across a scenario that visualises what it may be like in the year 2050 and the following snippet may give you an idea of the advances that we can foresee. It was written as a letter to a friend and I reproduce it as it was.

"Then I painted for them a word picture, of a man sitting at an empty table. He was wearing glasses, but he had no computer, monitor, or keyboard. He was just sitting there, talking to himself, tapping his fingers on the blank table, and sometimes absently pointing at the empty wall he faced. A refugee from an asylum? No! He was wearing his computer in his glasses, which had a small earpiece that also acted like a microphone. His gigantic Mac graphic interface was projected on the wall in front of him, and he was typing on the virtual keyboard appearing on his desk, which the glasses projected. Instead of a mouse, he used his finger to touch what he wanted, on his ghostly monitor. He was talking out loud because he was using his voice mail on the Internet."

If you think this is far fetched just consider the advances that have been made in the last 50 years. The invention of the transistor had only just taken place and it was not until 1961 that the first integrated circuit was invented leading to the miniaturisation we see today. I am sure that the future will show us things that we would never have dreamed of.

MINUTES OF NORTHERN S.I. REGIONAL MEETING HELD AT GREY HOSPITAL, GREYMOUTH 27 APRIL 2002 AT 1.40PM

PRESENT: Tony Blackler, Stewart Dunlop, Russell Dickson, Ian Ward, Murray White, Bill Armstrong, Tom Sawyers & Gary Sara

APOLOGIES: Alan Beuzenberg, Alan Thompson, Bruce Hellier, Rod Collins

CORRESPONDENCE: Nil

MINUTES: It was moved by Russell Dickson and seconded by Ian Ward that the minutes of the previous meeting, as circulated, be approved - carried

REPORTS FROM DELEGATES ON THEIR OWN AREAS:

First from the The Top of the South was Russell (Nelson) who gave us an extensive overview of his Project in hand and it was pleasing for him and no doubt his Board that this Project was advancing very well from all aspects of the job.

Next going to our Southern most Delegate at our Meeting Ian, (Timaru). Ian has had the inevitable job of working thru the Commissioning of the New Hospital and currently working on an A/C Upgrade.

Further North to Stewart (Ashburton) who is absorbing (2) more Rural Hospitals into his Organisation, which will now total (6), all the best Stewart.

Further north we go to Tony at Christchurch with the upgrade of Sterile Service and the opening of the Dental Block, across town to Burwood where we find Murray who is currently working on the new Orthopaedic Theatres.

Back to "Sunny" Westland where Tom and Gary are settling into their partially refurbished Hospital and are eagerly awaiting the start of their Fire Upgrade.

MAGAZINE:

Magazine requires more articles submitted for Members interests.

CONFERENCES/ANZEX

Conference in Wellington went very well with excellent speakers and was attended by A.N.Z.EX Delegate Glen Reynolds from Adelaide. Next Conference to be held in Auckland in November 2002 with reports that everything is advancing well. Kieran Davies is Programme Organizer for ANZEX Host, Auckland Conference 2002.

Kev Beardsley, Hamilton is ANZEX Delegate to the Conference in Melbourne 2002.

Caulk from Australia will be their ANZEX DELEGATE at the Auckland Conference 2002.

Moved Tom Seconded Tony that Bill McDougall be ANZEX Rep to Australia 2003.

Tony reported conference venue booked for Christchurch 5/7 November 2003.

REGULATIONS & STANDARDS

E.C.P.12 Parts of this Regulation could disappear. 3003/3551/2500 due for Publication.

Body Protection R.C.D's will be made mandatory for all Patient Areas, and along with colour coded outlets (Power) i.e.

White	N.E.	Non Essential	
Red	Ess.	Essential	
Blue	U.P.S.	Uninterrupted	Power Supply

Excellent achievement as long as the whole unit is coloured not just the front plate.

Max Christensen is wishing to step down from Secretary/Treasurer and nominations are required for this position.

Meeting concluded with an excellent overview from our C.E.O. John Luhrs on the numerous aspects of running a D.H.B. Many thanks John.

There being no further business the meeting finished at 4.30p.m. The next meeting will be held in Nelson April 2003.

Many thanks to Nigel Lord (Electrician) for being driver of the day for the Ladies day in the Country.

FOLLOW ONS:

When the Meeting concluded Afternoon Tea was had. The Ladies had a day in the country, visiting Punakaiki and the Brunner Mine Disaster Site which is across the Grey River. We all joined together for a Happy Hour at the Social Rooms. The day finished with an enjoyable meal at the Ashley Hotel.

Next day a 10.00am start. Up to the Strongman Mine Site where we were privileged to see first hand the new Opencast Mine and surrounding areas from a great height.



Photo above :- The members and their partners who had an enjoyable weekend in Greymouth attending the Northern South Island Regional Meeting

57th Annual Conference

Auckland - City of Sails

Sustainable Healthcare Support — A Holistic View

7th & 8th November 2002

* Registration now overdue.