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THE HEALTH ENGINEER

THE JOURNAL OF
THE NEW ZEALAND INSTITUTE OF
HEALTHCARE ENGINEERING

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The Journal of the NZ Institute
of
Healthcare Engineering

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Institute Officers

President
Tony McKee 06 844 9887, 027 435 4617

Vice President
Doug Moller 0800 11 44499

Secretary– Nigel Wing
Home 03 322 7400, Work 03 364 0199

NZIHE –
Nigel Wing
6 Edmond Storr Rd.
Halswell, Christchurch 8025
E-mail – nigel.wing@cdhb.govt.nz
Web site – www.nzihe.org.nz

Treasurer/ Membership –
Allison Blackler 03 332 0554

Executive Officers –
Kevin Bardsley 07 839 8602
Max Christensen (Home) 04 970 7630
Jeff Shierlaw 03 464 0107

Immediate Past President –
Bill MacDougall – (Home) 09 479 7315

Mentor – Tony Blackler 03 332 0554

Editor – J. Logan
17 Baden St
LEVIN, 5510
Phone 06 368 5152
e-mail jamlog@vodafone.co.nz

Contents

Inner back cover page:- Photo of the delegates at the Masterton conference of 1985, twenty five years ago.

Cover Photo:- An almost finished dental van, seen at Action Motor Bodies site visit at last years conference, which is now in use in the South Island. Part of an increasing mobile delivery of health to country schools, health centres and public places.

The health and viability of any organization 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 Report July 2010

Mid-winter Greetings! DHB's are finalising performance measures and resource issues so that we can turn our full attention to another challenging financial year for the sector.

I note with interest that Australia is soon to introduce a Voluntary Housing Design Standards initiative to provide people with greater independence in their homes. The aim is to make houses functionally easier and safer for all occupants, including people with disabilities, seniors, those with temporary injuries and families with small children as well as being more readily adaptable to changes. Houses would include some practical health type design features as well as being flexible over the passage of time.

Bearing in mind the continued emphasis both nationally and internationally on the need to treat people within the local community (and thereby reduce hospitalisation) and also try to keep them in their own homes for as long as possible rather than in an institution, we should not be surprised with the Australian approach to housing design. Here in New Zealand, Service Plans for our DHB are constantly being encouraged to include wide consultation and meaningful interaction with our local communities on how we might do this better.

It could be worth looking for the opportunities within our DHB's on how we might provide support to this planning. Our roles within DHB's often require a very similar approach with future-proofing of designs, equipment and maintenance issues as well as adaptability in response to society and technological developments. Some could be well placed to provide a good level of guidance and support with our Service Plans as well as perhaps the wider community. For example this might include public/private development planning with PHO's, disability groups, social services, Housing NZ, etc. Many of us within the Institute have "been there and done that." We are familiar with the wide range of compliance issues, availability of reliable user-friendly equipment, etc. Now might be the time to look for opportunities where we could pass on some of this hard earned knowledge to the wider community? Perhaps a bit of a challenge but I would be keen to hear what you think.

On the Institute interest items:
The **Auckland Conference** organising team are well into the planning and preparations for our annual Conference in November. Please see Conference information and application form enclosed. The Conference is a great opportunity to gain some relevant knowledge and input, network with providers and just catch up with colleagues. Look forward to seeing you there.

I am pleased to advise that **Jeff Shierlaw** has been co-opted onto the Exec. Jeff is the Buildings & Property Manager at Mercy Hospital, Dunedin. He brings a private health perspective as well as a facilities balance to the Exec team. Thank you Jeff for being prepared to serve the Institute in this manner.

I would heartily encourage applications for the **BOC Award**. This is a premier award that the Institute is proud to promote and support applications for.

We continue to handle most Institute business via our regular teleconferences which occur about every 8 weeks. Feel welcome to contact one of the Exec team should you like something included in our deliberations.

Kind Regards
Tony McKee, President NZIHE.

Simulation Clinic, University of Otago Dental School.

Photos and text supplied by Doug Moller.

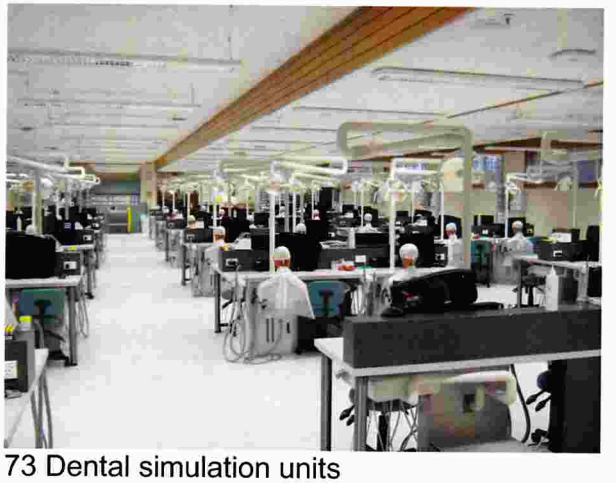
The University of Otago, Dental School in Dunedin was running short of clinical dental units for treating patients for an increasing number of dental student rising from 65—73.
The dental units within the main clinics were used for simulation training previously with the basic Ossim head, as well as clinical treatment.
Two million was budgeted for equipment in the new clinic and a "reverse tender " was issued to the supply companies. This is where the companies are asked to partner with the school and offer as much equipment as possible for $2 million.
Planning started in 2007 and an area occupied by the library was earmarked. Universities property services, Project management team, dental school staff, architecture staff & library staff, worked over 18 months to move a cafeteria, library to set-up a state of the art, simulation clinic.

German manufacturer Sirona Dental Systems were chosen from an evaluation process and they were to provide 73 dental simulation units in pods of 4 or 5 with individual PC, and a video / audio selective demonstrating system, digital x-ray, operating microscope & intra-oral camera. An inducement was the supply of a 3D cone beam CAT scanning digital imaging system.

Architectural design progressed well and the full number of 73 stations fitted within the area available along with digital radiography suite, a cleaning / disinfection room & clinic nursing station. In the October, I had the opportunity to travel to Germany for training on the Gailelos cone beam, simulation clinic units and the Tenio unit. This proved to be invaluable when we came to work with the German project team in Dunedin.

Three 40' containers of equipment arrived in mid December 2009 for installation into the recently refurbished area with it's 20 floor penetrations for the services of air, water, vacuum, power, data, control wiring & video feed.

Along with the equipment, arrived a team of 4 German technicians & 3 New Zealand technicians. These technicians worked with 4 of my technicians and I project managed the installation. The Germans stayed for 2 weeks and we incorporated a number of events to show them NZ and it's people. As one group of German technicians left for home just before Christmas, another 3 arrived for 3 days to oversee our installation of the large Durr compressor and vacuum plant in the floor below. This was impressive plant!



73 Dental simulation units

Durr compressed air station

Multiple electrical & computer installations were carried out at each station, complicated by the installation of laboratory gas outlets.

The main plant, compressors to the left, suction separators & vacuum motors

PC's were fitted into bench upstands at each station, with cooling thermostatic fans fitted at each pod.

A clever video system was next to be fitted with the help of one German technician in January. This unit while using well proven VGA cabling and slot card amplifying controllers (2) went in very well and worked correctly from day one. Significant time was spent fitting measured VGA cabling to the two main controllers. The underside of the clinic was a car parking area and so this significantly made installation of plumbing, data, video-diadect's VGA cables, air lines & vacuum piping much easier.

In this project one of the largest jobs was the removal of packaging, segregating and transporting to appropriate disposal this took three truck & trailer loads and a team of our staff.

Our staff worked from fitting up the air supply through to setting up software for the digital intra-oral camera and digital X-ray. Painting bench edging through to fibreoptic lighting.

The staff installed lighted handpieces, curing lights, ultrasonic scalers & electric micromotors. A large amount of electrical wiring was completed from protecting RCD's to indicating sockets on each pod of work stations.

A central master station allowed tutors to communicate with individual students or the whole class, communication could be two way. Students were able to hear instructions by either headset, monitor speakers or clinic PA system. They could visualise the tutor instructions, intra-oral camera pictures, microscopic video from the Zeiss operating microscope mount at the Master station. The

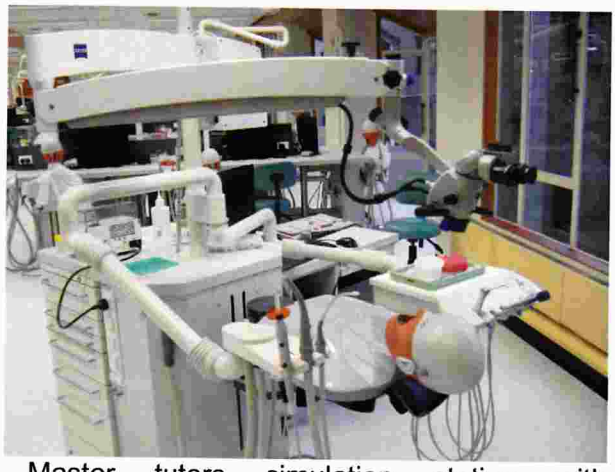
students have individual access to the internet and the University Intranet with individual PC's. The Sirona simulator mannequin and head is fully articulated, capable of raising and lowering tilting, opening and has removable Frasco jaws with removable teeth, These teeth can be fully operated on, and cavity cut & filled, crown and root filling done. These simulated operations are performed with fully functional dental equipment high speed turbines with fibreoptic lighting, slow speed electric motors, curing lamps, ultrasonic scalers and high volume evacuating suction.

Noise in the clinic had always been a concern to the design team; the architect provided some sound absorption where possible, especially on the ceiling. As it turned out noise proved to be quite acceptable and not distracting when a full class is operating. Whether we have some form noise cancellation, I am not sure, but we are very satisfied with the result.

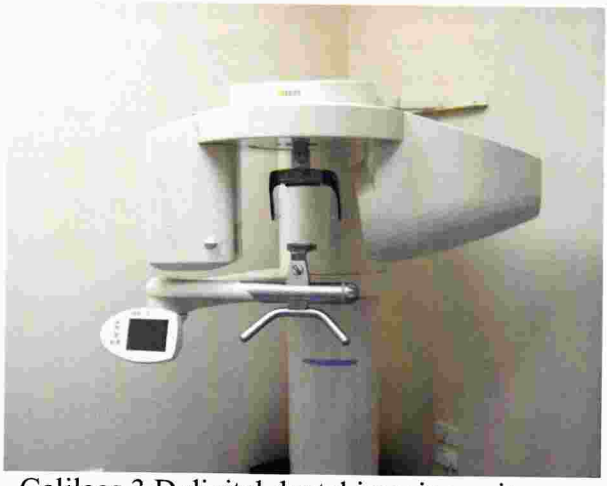
The main plant, sited a floor below in a purpose built plant room is one of the impressive parts of the technology of this clinic. It is responsible for the supply of compressed dental air equivalent to medical air quality but at 5.5Bar. All pressures, drying and regulation is microprocessor controlled and is able to be visualized at the dental school's workshop in the north wing. All alarms and servicing information is also alerted to staff on this visualisation PC. Also within the plant room is the dental vacuum and separator tanks, amalgam separators and disinfectant dosing systems. Dental vacuum is different from medical vacuum in that it runs at a high flow and low head. It is designed to pull secretions and fluids from the "patient" to large separators. This makes piping for the vacuum very important and this was installed using Valsir polypropylene waste piping.

The clinic has now been operating successfully for four months and students are using it in excess of 6 hours per day. All undergraduate students use the clinic along with overseas dentists seeking registration and dental postgraduate seminar and telemedicine courses.

A Frasco simulation head & torso



Master tutors simulation station with microscope.



Galileos 3 D digital dental imaging unit .

As a follow up to the site visit at the Hamilton conference where we saw the manufacture of mobile dental clinic vans here are details of the Mobile Services Pillar to which the vans are required to connect to at each school site.

Oral Health – Mobile Services Pillar

The mobile services pillar designed for the Otago / Southland areas required to fulfill a number of requirements.

As a number of the mobile pad sites were on the edge of the school sites with little or no adjacent buildings to mount the services on, the services had to be free standing and contain all services required by the mobile units, this also provides one location for all services to the mobile units.

The scope for the Pillars was refined to the following:

- Ability to be free standing
- Ability to be mounted against existing buildings at some sites
- Must be AS/NZS3001 compliant (transportable vehicle site supply)
- Provide AS/NZS3001 labeling and warning label within the pillar
- Provide labeling on the pillar to identify point of supply for power and data
- Robust
- Corrosion proof, especially for the Invercargill site due to the corrosive atmosphere
- Secure when not in use (which maybe 95% of the time)
- Secure when in use (no public access when cables are installed)
- Check meter to monitor energy usage
- RCD protected 3Ph safety interlocked outlet for level 2 Oral Health mobile units
- RCD protected 1Ph outlet provided to future-proof for 1Ph units mobile units
- Earth bonding stud for separate bonding point of transportable vehicles
- IP67 rated data outlet and enclosure to match mobile unit outlet and also provide corrosion protection of data jack
- Provide water, drainage and backflow on or adjacent to the services pillar

65th Annual

NZIHE

New Zealand Institute of Healthcare Engineering

National Conference Auckland
"Getting More from Less"
4-5 November 2010

It was always going to be a hard act to follow the excellent Hamilton Conference of last year

But we're up for it...

65th Annual

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Cost cutting and financial restraint is nothing new in the health sector which is by now well attuned to the requirements of fiscal restraint and limited budgets.
The current environment is however the most stringent for some time and is challenging "non front line" clinical services such as Facilities Management and Biomed services by putting even more focus on adding quality and providing an ongoing service whilst tightening our belts - again.
The theme for the Auckland NZIHE Annual conference in November 2010 is

"GETTING MORE FROM LESS"

And as such will reflect the growing issues around maintaining a quality, volume driven workload whilst budgets are being reduced and capped.
Book it in your diaries now and start making your plans – it's never too early. Start thinking about your budget allocations for next year and get your leave sorted out!!
Although planning is in the early stages we intend to have a full programme of topical interesting papers.
Planning for our traditional trade night event is also well underway with a large number of sponsors and trade exhibitors already signed up.

In addition there is an optional Biomed Day on Wednesday 3rd November being organised this year by ***Domo Technica on Ansur Test Automation Software - creating test procedure templates and its integration with Databases.***

The venue – Crowne Plaza, Albert Street, Auckland
Situated in the centre of Auckland's business district directly above the 'Atrium on Elliott' which boasts a 4 level shopping experience of fashion accessories, beauty and health, gifts, souvenirs, lifestyle and many other shops, the Crowne Plaza is also within easy walking distance to the downtown Viaduct harbour with its vibrant atmosphere and many cafés and restaurants.

Accommodation Booking:
Ph: 0800 801 111
Fx: 09 302 3111
Em: res1@crowneplazaauckland.co.nz
On all bookings please quote Ref #88308 to obtain Room Rate of $200 incl GST per night based on single or double occupancy.

Convenor :- Bill MacDougall
Clinical Engineering
Level 4 Support Building
Auckland Hospital
Ph: 09 307 4949 Ext 24931
Fx: 09 307 8948
Em: Billm@adhb.govt.nz

Some facilities have made special arrangements to launder and process employee-owned contaminated clothing in specially designated locations with appropriately trained staff. Others have installed a washer and dryer in a designated area and developed a mechanism for a "uniform exchange" so that employees are provided with temporary uniforms while their own garments are being laundered.

Although the Centers for Disease Control and Prevention (CDC) describes the matter as unresolved, the Association of Perioperative Registered Nurses (AORN) has historically opposed the practice of permitting surgical personnel to launder "soiled" scrubs at home.

The major difference in the positions taken by these two organizations obviously accounts for the differences in positions taken by some health care providers and the infection control community. However, AORN has recently acknowledged that many hospitals have been permitting their surgical personnel to launder their own "soiled" attire at home. In so doing, they have suggested the manner for laundering and included the proviso that the process include the use of chlorine bleach.

The practice appears to be clinically effective and to have no harmful effect on the home environment. Not one of the hospitals that have implemented this type of program is known to have experienced an increase in the incident of surgical-site infections. One can only conclude that policies requiring that soiled scrubs be processed by a "facility-approved and monitored" laundry is not evidence based.

Advances in chemical technology and new innovative types of processing equipment have made laundering a science within itself and should not be taken lightly.

How Clean Are Your Doors?

Like with many cures to problems, the increased use of alcohol based hand cleaner seems to have had an unexpected side effect. The National Hand Hygiene Campaign is designed to help prevent cross infection between staff / patients / visitors in hospitals.
The alcohol stations are placed at many entrances to wards, lifts etc, and public and staff alike are encouraged to clean their hands when entering or leaving the area.

At Hutt Hospital we recently refurbished doors to two wards. The doors had suffered the usual hospital battering, with scratched paint, chunks broken from frames and edges of doors and hinges relocated by ill aimed trolleys.
We also noticed that the paint on the surfaces where the doors are pushed was very soft. It was able to be scraped off with a fingernail. We scratched our heads for a while until the painter suggested that the alcohol gel may have something to do with it.

Further investigation has revealed similar paint damage on doors in other areas such as drug rooms.
Whilst we have not carried out any specific investigation into the problem, the clues are pointing to the culprit being the gel.

We don't have a solution for this yet, other than to make the push plates larger. But an interesting observation is that people seem to make an effort to avoid pushing the part of the door that they assume everyone else pushes e.g. the push plate.
I suspect that as we make the plates larger, the paint damage will move higher up the doors.

Max Christensen,
Hutt Hospital

Photo of those attending the Masterton Conference of 1985. Yes it was twenty five years ago. Some have passed away, many have retired and others are pursuing a living outside of the hospital service.

Front row from the left is Reg Baran, Ernie Wilson, Brian Fry, Hugh Elder, Tony Blackler, Brian Fitzwater, John Wray.

2nd row Eric Hailstone , ?, Neil Trower (behind Brian Fry), Bob Cottrell - Australian delegate, Mike Timmins, Bob Duncan, Graham Todd, Bob Adams.

3rd Row - ?, ?, Neville Burridge, Scott Cormack, John Cherry – Australian delegate, Peter Stevenson, ?, Robin Dunmall, Norm Lovegrove.

4th row – Peter Duncan, Keith Sangster, George Vanner, Brian Hogg, ?, Lex Smith, Rod Markham, Barry Dryden.

5th row - ?. Stewart Dunlop

It is very difficult trying to recognise half obscured faces one knew twenty five years ago