



Operating Theatre Technology Stryker i-Suite Tour

At the Flinders Medical Centre Biomedical Engineering Department (FMC BME) 9th of May 2013, SMBE SA hosted an evening with the experienced help of Richard Denton to demonstrate their new General Theatre operating environment. After some refreshments in FMC Biomedical Engineering Department, 20 of us followed Richard Denton around to the operating theatre suite and put on theatre clothing. Richard then showed us the theatre layout before we went into Theatre 8 for a close look.

The FMC redevelopment project saw the refurbishment of 10 state of the art integrated operating theatres completed in 2012. Each theatre has a minimum of 65m², with Theatres 2-10 backed onto a central sterile storage facility. Theatres 1 and 2 were designed with Cardiac procedures in mind, and have a large central perfusion room between them.

The ten theatres accommodate all specialties and utilise the latest Stryker i-suite technology, which allows the seamless control and distribution of video sources around the Operating Room (OR). There are; two 26" Full HD surgical monitors suspended from the ceiling on movable arms, two 46" full HD wall mounted LCD's screen, which when used in conjunction with the In-light camera give surgical staff the ability to interact with the surgeons and pre-empt their requirements. Two booms suspended from the ceiling provide mobile integrated storage for the endoscopic devices, as well as supplying gases and power needs for all the surgical equipment. These booms have air brakes and can be moved in and out of the surgical field as required.

Richard setup an operating table with an endoscopic camera and light source to produce a display on the screens. Richard explained a lot of the technology and fielded many questions as the tour was kept informal. There are two Visium 2 operating lights in each theatre and they have 90 LED's in each head, each providing 160,000 lumens of bright white light. Apparently they have excellent colour rendering abilities that enable surgeons to distinguish between red tones like never before. The previous lights used Halogen bulbs and a life of 500 to 5,000 hours. The LED's have a life expectancy of 50,000 hours which equates to 17 years running 8 hours a day 365 a year.

According to Richard, the heart of the i-Suite is the Infinity 3 video router and control system, which via a touch screen controls the entire suite, from activating the theatre lights, to capturing images and routing the video signals from monitor to monitor. The i-Suite also includes the SIDNE system which allows remote voice control of the endoscopy operating equipment, theatre light and other Stryker devices.

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SMBE SA committee members, members and guests

which will run all 10 theatres at moderate capacity for 8 hours.

Unfortunately time overran us on this very interesting tour where public access is almost impossible. We concluded with a group huddle around the operating table. A special thank you to Richard for making time and sharing great insight into a state of the art operating theatre.

Tony Carlisle

SMBE SA Vice President 2013

The teaching and conference facility integrated into the suite allows voice and video calls not only between the suites within FMC, but to conference rooms around the hospital. This could also be to off-site locations anywhere in the world if you have an ISDN connection.

Each theatre has built in failsafe mechanisms to protect staff and patients in the event of a failure. In addition, each theatre is supplied by a central dual redundant uninterruptible power supply (UPS) with a total capacity of 110kVA,

Call for SMBE (SA) Committee Nominations 2013-2015

Our next event will be the Annual General Meeting held in August.

If you or someone you know has ever thought about contributing to SMBE (SA), and collaborating with a dynamic group of people who have vast and diverse experiences in the Clinical Engineering field, then this is the perfect time to be nominated as a SMBE (SA) committee member.

- Four meetings a year plus an AGM and Christmas show.
- Contribute to the SMBE (SA) Technical program by participating in Technical Presentations and Site Visits.
- Be involved in award nominations, and social events.
- Improve your professional status.

This AGM, we are conducting nominations for;

Vice President, Treasurer, and two Council positions.

More details relating to the AGM will be sent shortly along with council nomination forms.

SMBE on Facebook

SMBE SA has just launched its own facebook page. Search for "SMBE SA/NT".

Become aware of happenings including out technical program calendar events and awards as they are developed.

Be sure to like the page and spread the word!



SMBE Survey ... the Results Are In!

Thanks to all of the members who took some time to complete our on-line survey over the last few months. We had a good number of responses from an excellent cross section of members, giving the committee the confidence to take the ideas on board and advance the Society in a way that is consistent with people's views.

It would appear that the things we have been getting pretty close to the mark include the frequency and topics of our technical meetings, the travel grant and encouragement award programs and our membership fees. It was felt, in fact, by many that our fees represent outstanding value for money.....almost bordering on being TOO affordable. The mix of technical and networking events appears to be quite close to the mark, with some potential to increase our exposure and activities amongst the student population evident.

There was overwhelming support for our newsletter with some useful suggestions for how it may be made even better.

It was revealed that a surprising number of people do not visit our website regularly. This is always puzzling, given that it contains by far our biggest information resource and is always up to date with relevant info. This provides the committee with the challenge to increase its attraction and number of hits.

The other clear message was that members see merit in ensuring that the SMBE is connected and active at a national level, this has been taken on board with some activity in this area already having been triggered.

Thanks once again for taking the time to provide us with valuable feedback and of course feel free to contact the committee at any time with thoughts and suggestions. The contact details are, of course,..... on the WEBSITE.....www.smb.e.asn.au

AS/NZS 3551 Management Programs for Medical Devices

On the 12th of June 2013, a overview of the new content and changes to the AS/NZS 3551 standard was presented in a workshop format. AS/NZS 3551:2012 has evolved significantly and has become more comprehensive since the last revision in 2004. Michael Smith, Biomedical Engineer at Flinders Medical Centre attended the workshop and provides a review of the new standard. The committee wishes o thank Michael for his time to wrote the article.

In the eight years since the standard AS/NZS 3551 was last published, network-capable medical equipment has become the norm rather than the exception. In the last month, dozens of wireless access points were installed in our hospital's ceilings to provide connectivity to an ever-increasing fleet of wireless- capable medical devices. Yet the 2012 standard barely contains the word, "network", let alone guidance around wireless security or software patches. The resolution of this and other issues is instead left to professional engineering judgment within a European-style quality-systems framework. While this move is a sensible one, the standard still struggles to shake-off the discrete-device mentality that has characterised clinical engineering in the past.

The biggest cultural shift in the standard is the move of the electrical safety test procedures to an appendix. What was once a mainstay of clinical engineering is now relegated to a more sensible place, while functional testing and risk management now have focus. This reflects the modernisation of medical technology and corresponding trend in risk: electrical safety is under control, while configuration and software version control errors are a growing source of hazards. Instead of trying to encompass the increasing complexity of devices and systems, the standard wisely pushes the responsibility onto the engineers who manage it. This is, perhaps, the greatest strength of the new edition.

This shift will no doubt ruffle the feathers of those who would like a more prescriptive standard. For example, measurement tolerances for electrical safety testing have been removed, enclosure leakage current is now called, "Touch current", and acceptable earth-leakage currents are higher

than they were in the previous edition. To argue over the details of these tests is to miss the point: if functional testing carries more weight than electrical safety in risk management, then electrical tests are but one of many types of safety tests. Instead of attempting to specify levels and tolerances for the vast array of tests applicable to medical devices, the standard describes how a service entity should manage and document those tests and associated risks. For instance, calibration intervals for test equipment are not specified, but instead it is emphasised that test gear should be calibrated regularly, to traceable standards, at intervals not less than manufacturer's recommendations and that test data should be stored in a document control system. This makes the standard adaptable and applicable to the vast diversity of medical devices, facilities and service departments.

Unfortunately, the standard's continuing definition of medical electrical systems as, "...two or more devices, at least one of which is medical equipment, are interconnected electrically or functionally..." and associated demand that service entities test, "...the system as a whole.", leaves a growing set of equipment that is unable to be tested in compliance with the standard. Most medical equipment purchased in Australian hospitals this year will be software-driven, networkable and interoperable with other devices and systems. Functional safety is no longer enough; service entities must also consider risks associated with these capabilities. Let's get the standard committee to consider them too.

Michael Smith
Biomedical Engineer, SA BME Flinders Medical Centre

Game On! Accessible gaming for children with disabilities

On Tuesday 26th of February 2013, David Hobbs from the School of Computer Science, Engineering & Mathematics, Flinders University, hosted an evening to present an amalgamation of research and design into the development of computer gaming for children with motor impairments.

David was awarded the 2012 SMBE Biomedical Engineering Scholarship, which helped him to present his research at The Australian Rehabilitation and Assistive Technology Association (ARATA) conference, 22-24th August 2012. Upon returning to Adelaide, he learnt that he was awarded first prize for the ARATA Soft Technology Awards!

Fortunately for SMBE SA members and guests, David was able to recreate his presentation in the great environment of the new Science Innovation Learning Centre at Flinders University. For all who attended, it was clear why his research and developments into the area of study had been very well received at the 2012 ARATA conference. However, to our advantage, David was also able to reveal the design of his game console controller, which was still a very closely guarded secret at the time of the 2012 ARATA awards.

Having a strong background in the field of Rehabilitation Engineering and Assistive Technology from working at Novita Children's Services as a Senior Rehabilitation Engineer for 9 years, David briefly explained how he was able to see the great opportunity to improve the accessibility of computer games for children with cerebral palsy before defending the approach and revealing the challenges his colleagues and students have had to address along the way.

Several games were demonstrated, which had been developed by final year Flinders University Software Engineering students. All games were designed for the use of a controller with four axis of movement only – no button. As a result, the production of the joystick controller was a very insightful example of thought and design. After developing two prototype controllers, David settled on a practical design that involved the need for both hands to be placed on an orb-like sphere, which rotated on a fixed base. Fixed hand pad positions on the controller included tactile feedback through vibrations to improve the learning and conscious gaming experience.

The games were evaluated separately to the developed controller by able children aged 5-12 years old and very positive results were obtained. Most of the primary school aged children said that they would purchase the games if they had a choice. Evaluation and trials as well as visual graphical improvements to enhance the playability and experience of the games are continuing.

On behalf of the SMBE SA members and guests who attended David's presentation, I wish David all the best in future developments of his project. We are fortunate to have someone like David leading ways in rehabilitation innovation in this state. Also, involving the likes of Flinders University Software Engineering students to create solutions for Biomedical Engineering categories enhances the awareness and opportunities for non-Biomedical Engineering graduates.

Lachlan Eberhard
SMBE SA President 2013

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The organising committee of Australian Biomedical Engineering Conference (ABEC) 2013 are excited to announce the conference will be held in Sydney from Sunday 13 October to Wednesday 16 October 2013. The conference will be held at the SMC Conference and Function centre, 66 Goulburn Street Sydney.

The conference website is available with all the detail regarding Call for Abstracts, Registration, Provisional Program and more. Simply click on this link: [ABEC 2013](http://www.abec2013.iamevents.com.au)

This three-day conference will be invaluable for all those involved in the Biomedical sector, including professionals, technologists and associates.

The conference will explore challenges currently facing the health sector in Australia and discuss new ideas and approaches. It will focus on the way Biomedical Engineering plays a vital role in providing quality health outcomes for people.

Conference delegates will be able to choose presentations from a range of these streams covering discipline specialities as well as key themes including;

[The Biomedical Engineering Workforce](#)

[Innovation through Biomedical Engineering in Health](#)

[Managing Health Technology](#)

[Key Dates](#)

[Wednesday 26th June 2013](#): Review of submitted abstracts by reviewing panel.

[Wednesday 10th July 2013](#): Advice if abstract has been successful. If successful you will be given the time and date of presentation.

[Friday 4th October 2013](#): Final presentations to be sent to the conference organisers via email or mail.

Note: [SMBE SA ABEC Student Travel Scholarship is being offered again this year! Flyer and application form attached to newsletter.](#)

SMBE Awards

SMBE (SA) \$1000 Biomedical Engineering Scholarship

Don't forget that you may be entitled to apply and be selected for being subsidised up to \$1000 to attend or present a paper at a conference or institution selected by you! The scholarship is open to all SMBE SA members who have been members for at least three years. Please refer to the website www.smbe.asn.au

SMBE (SA) 2013 ABEC Student Travel Scholarship

SMBE SA is again offering one student or postgraduate a travel scholarship of up to \$1500 to assist them attend and present an oral paper (preferred) or poster as a part of the 2013 Australian Biomedical Engineering Conference in Sydney 13th to 16th October 2013. Flyer and application form attached to newsletter.

Completed applications to be received by 2nd August 2013

All grant applicants will be notified by email early to mid-August 2013

SMBE Student Membership is ONLY \$15

Membership form available online – SMBE (SA/NT) website

SMBE (SA) Encouragement Award

Do you know someone who deserves to be recognised for their endeavour and enthusiasm within the field of Biomedical Engineering?

If you know of a worthy recipient who would benefit from the recognition, or if you think you are that person, we encourage you, or a peer, to submit a SMBE SA Encouragement Award nomination form. They are available on line at www.smbe.asn.au. The award is open to all Biomedical Engineering practitioners and incorporates one year free membership to SMBE SA as well as a funded visit to a Biomedical Engineering conference or seminar.

SMBE Membership Fees

Do you know if your SMBE SA membership is current? Would you like to confirm your membership?

For all related questions, please contact the SMBE SA treasurer: Treasurer@smbe.asn.au

A membership renewal form is available through our website; <http://www.smbe.asn.au>

Membership Certificates

Are you a SMBE SA member without a Membership certificate?

Would you like to update your email or contact details?

If so please contact the SMBE SA secretary: Secretary@smbe.asn.au

A membership certificate will be made for you and formally presented at our next technical meeting.

Newsletter Articles

Would you like to leave feedback or comments about the SMBE SA newsletter?

Maybe you have an interesting article to share?

If so, please contact the SMBE SA secretary Secretary@smbe.asn.au

We look forward to hearing from you!

Council Positions 2012/2013

President	Lachlan Eberhard
Immediate Past-President / Newsletter Editor	Olivia Lockwood
Vice-president	Tony Carlisle
Treasurer	Dan Fletcher
Secretary	Vera Townsend
Membership Officer	Hatice Kalkan
Council	Greg Smith Robin Woolford Maged Shenouda Adrian Richards Hatice Kalkan
Webmaster	Robin Woolford

Forward to: Secretary@smbe.asn.au

Application for SMBE (SA/NT) Biomedical Engineering Travel Scholarship ABEC 2013

The SMBE (SA/NT) Biomedical Engineering Travel Scholarship is provided to advance knowledge amongst Biomedical Engineering students in South Australia and Northern Territory. The scholarship is for financial support (up to \$1500) for a student or postgraduate to present an oral (preferred) or poster session at the 2013 Australian Biomedical Engineering Conference in Sydney 13th-16th October 2013.

APPLICANT DETAILS

Name:	Phone:
Student ID:	Institution:
Address:	
Email:	

- ☐ I have attached a copy of my submitted abstract
- ☐ I have received and attached confirmation of my abstract acceptance
- ☐ I am still waiting for abstract notification

Other funding applied for / received:

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Completed applicants to be received by 2nd August 2013
All applicants will be notified by email mid-August 2013

To be eligible for this scholarship, the applicant must:

1. Be a member of SMBE (SA/NT) – can join immediately to be eligible. Refer to SMBE (SA/NT) website for application.
2. Accepted to present at the conference (preference given to students accepted for oral presentations).
3. Agree to write a report on the event and submit it for publication in the SMBE (SA/NT) newsletter (no more than two A4 pages).
4. Submit relevant receipts for reimbursement up to the value of \$1500

Please attach any documentation that will support your application including formal conference abstract acceptance and a copy of your submitted abstract.

Note: preference will be given to non-committee members.

The SMBE (SA/NT) council holds the right to reserve the award.

Signed Date/...../.....