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THE CLINICAL ENGINEERING ASSOCIATION
OF SOUTH AFRICA

TECHNOLOGY
Updates

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what?

How
to...



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CEASA
NATIONAL
NEWS

THE VOICE OF CLINICAL ENGINEERING

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President's Letter



National CEASA President
Phillip Willmot

I would like to take this time to personally thank all the committee members that assisted in making the 2011 Conference the success that it was. There were some venue issues but this never detracted from the fact that we all enjoyed and great conference and a coming together of good friends and great minds. Thanks to all participants as well and especially to our speakers. Another thank you has to go out to our SAFHE colleagues as well as they certainly made the conference a huge hit. And last but not least, a huge thanks to our exhibiting companies for their loyal support, as without them, there is no conference. Thanks to all.

Just a short note on some updates we are busy with. Gauteng committee members are very involved now with local most interested tertiary institutions on developing a needs analysis for the industry. This is showing us how amazing our field is and how big the need is for clinical engineering technicians. See our insert on some results from the survey.

DOH have also done a parallel study and there is a huge need in the country, so we as CEASA are working with DOH on the MAC-HT Sub-committee to ensure we have a finger on the pulse of the future of Clinical Engineering. The load is shared amongst our local committee under the guidance of Lizanne Heyns, our Gauteng chairperson. Feedback and updates will be given in future newsletters and at CEASA members meetings.

The next big topic is the ECSA (Engineering Council of SA) registration process mandated by the DOH. This is imminent and as CEASA Council and local committee we are busy getting the ECSA committee for our Voluntary Association formed so as to handle future applications for the MEM (Medical Equipment Maintainer) categories. This will very likely be done folks, so we have to be ready when it does become a need to operate in this field. CEASA will be an avenue into ECSA so we are hard at work to get this program on the road.

This is some of the things we are busy with behind the scenes and will keep you updated on the progress as we have it.

Thanks and see you all somewhere in the field.

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For any comments, suggestions or news in your area send it to ceasagauteng@gmail.com

Editor
Philip Heyns

Technology Updates

Source: http://www.scientificamerican.com/article.cfm?id=how-ultrasound-changed-human-sex-ratio&WT.mc_id=SA_Twitter_sciam

How Ultrasound changed the human sex ratio

The technology that ultimately became the dominant method of sex selection around the world began as a tool for navigation. The story of ultrasound dates to 1794, when an Italian biologist curious about how bats find their way in the dark discovered sonar, or the fact that distance can be determined by bouncing sound waves off a faraway object and measuring how long it takes for the waves to ricochet back. Centuries later, when the growing prowess of German submarines during World War I convinced the Allies that to win the war they needed a way to navigate underwater, scientists put sonar to use. The American, British, and French governments jointly funded research into the phenomenon. The effort succeeded, and by 1918 the Allies were using acoustic echoes to correctly pinpoint the location of German U-boats. After the war, doctors guessed sonar might have medical applications as well. They first used ultrasound in surgery, where it turned out sound waves could heat and destroy tissue, making them helpful for everything from treating ulcers to performing craniotomies. Then in 1949 a chemist stationed at the Naval Medical Research Institute in Bethesda, Maryland, employed the new technology to locate gallstones in dogs, and ultrasound became a diagnostic tool as well. Physicians began navigating the human body as World War I submarines had navigated dark waters, bouncing sound waves off the internal organs. Ultrasound proved surprisingly versatile. It could clean teeth, treat cysts, and dissolve kidney stones. It may have been with one of these applications in sight that in 1959 Scottish obstetrician Ian Donald used the new technology on a woman who happened to be pregnant and noticed that the fetus returned echoes as well.

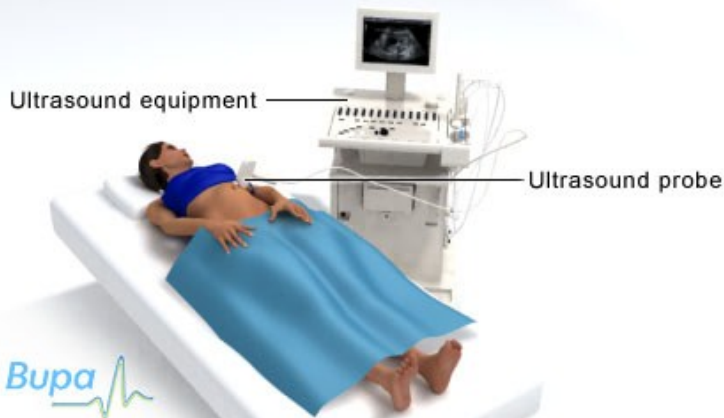


Ultrasound machine

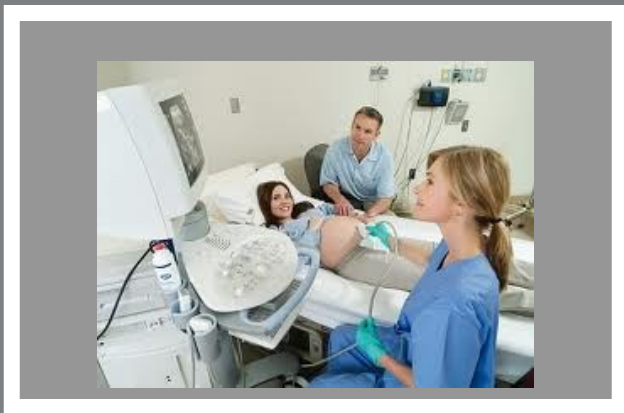
Back then, ultrasound offered the simple promise of learning more about a pregnancy. Doctors could not perform x-ray exams on pregnant women because of the risk of damaging the fetus, so Donald's discovery raised the prospect of an alternative form of prenatal imaging, giving physicians hope of monitoring high-risk pregnancies. If Donald suspected that knowledge would translate into fetal selection and subtraction, he probably envisioned women attempting to avoid debilitating sex-linked diseases like hemophilia. (When the first sex-selective abortions had been performed in Denmark using amniocentesis four years earlier, indeed, they were done for that reason --and discriminated against males as a result.) He could have hardly guessed that ultrasound would one day contribute to a sex ratio imbalance involving over 160 million "missing" females in Asia and elsewhere.

Technology Update continued

Sex selection was a dim possibility, indeed, because early ultrasound machines were nothing like those available today. The 1960s machines were cumbersome gadgets that towered over the pregnant women on whom they were used. One model, called the articulated arm scanner, resembled a giant version of the toy cranes fairgoers rent for a few quarters to try their hand at winning stuffed animals. The articulated arm scanner helped doctors take crude measurements of the fetal head, allowing them to track a baby's growth in the womb. But beyond that the image it produced was hazy, making it impossible to discern fingers and toes, let alone a tiny penis or vagina. It didn't matter that the early ultrasound machines yielded fuzzy images, however, or that they only proved helpful in a small proportion of pregnancies. To the 1960s public the technology looked positively futuristic. Around the time pregnancy became a choice rather than inevitability and the business of having children became about more than generating labor for the farm, we began seeking ways to bond with our babies before birth. An image on which to pin parental hopes made that task a whole lot easier, and so it was a breakthrough to have a preview, however muddled, of the baby growing inside a mother's uterus. Coming at a time of technological optimism when Americans were enamored of outer space and kitchen appliances alike, an era some were calling the Biological Revolution, ultrasound captured the public imagination.



Even though the high-resolution machines capable of identifying fetal sex and other finer characteristics were still years away, the press seized on the possibility that portraits of babies before birth might help us control the mystical birth process. The flurry of coverage that greeted the new technology forecasted extensive reproductive manipulation—which newspaper editors saw as a great thing. The headlines were bold and optimistic: Ultrasound 'Device Takes Guessing out of Pregnancy'. Knowledge Is Key to Happy Childbirth. 'A New Eye into the Womb'. One article dubbed ultrasound The Electronic Doctor. The headline on the cover of the September 10, 1965, issue of Life—alongside a hulking machine whose heavy arm nearly eclipsed the mother under examination—read Control of Life: Audacious Experiments Promise Decades of Added Life, Superbabies with Improved Minds and Bodies, and Even a Kind of Immortality. (Today preimplantation genetic diagnosis—a form of embryo screening during in-vitro fertilization that allows parents to select for sex, is greeted with similar enthusiasm. Girl or Boy? Now You Can Choose, proclaimed a 2004 cover of Newsweek.)



But public fascination also provided a window for criticism, and ultrasound elicited substantial ethical deliberation. Some critics feared overly powerful scientists. Feminists pushing for abortion rights fretted, justifiably, that the machine humanized the fetus. Others worried the new reproductive technology would be exploited by governments' intent on manipulating their populations; the Nazis, after all, had screened newlyweds for genetic diseases in their eugenics program. What if the power to create "superbabies" fell into the hands of an evil dictator? But none of these critiques came close to identifying what turned out to be ultrasound's most pernicious threat. In hindsight, 1960s Americans worried about everything except the possibility that average parents, emboldened by the new knowledge technology brought them, might make small, seemingly innocuous choices—and that those choices, taken together, would add up to disaster.

Did you know?

X-rays are a form of electromagnetic radiation with a wavelength in the range of 10 to 0.1 nanometers, corresponding to frequencies in the range 30 to 3000 PHz.

THE SAD PASSING OF JACQUES VERREYNNE (5/08/1975 - 28/09/2011)

Jacques joined SSEM Mthembu Medical in May 1999 and was employed as a Medical Technician based at our Cape Town Office. He received his National Diploma in Electrical Engineering in 1997 and completed his practical training at Lastron Electronics, where he gained experience in fault finding, repairing of audio & visual electronic equipment, designing of electronic circuits, planning & installations of **electronic** equipment including video and audio systems. Jacques was quiet but confident in nature - he was a conscientious person and always made sure that he delivered the highest level of service to our customers in the medical field.

Jacques had a brilliant mind for electronics and computer systems. While at SSEM Mthembu Medical, he specialised in Neurology as well as the Pulmonary Lung function equipment. Jacques was much more than a medical technician, he was extremely well liked and loved by his customers and all his colleagues. Jacques made many strong friendships with fellow technicians in the field.

He recently got engaged and was about to be married in November 2011 and start a whole new chapter in his life - sadly it was not meant to be. Jacques fell ill with TB Meningitis and was admitted to the Cape Gate Mediclinic Hospital. On the 28th September 2011, Jacques passed away at the age of 36 years old.

Jacques will be sadly missed by the entire medical industry and all of us at SSEM Mthembu Medical. Although Jacques has left us, we will always have a special place for him in our hearts and the memories of the impact he had within the medical field.

By Royden Peirone

Say What?

CEASA National News caught up with Phil Willmot, President of CEASA, Sharks supporter and dad of two to find out more about the man, the legend...

You are the president of CEASA. How do you see CEASA's future developing? It is a team effort and I am proud to be leading such amazing people with such drive. I believe that our past efforts will pay off when we see development of technical support people with the support of government, as we see after our recent successful conference. Also looking to assist with the training process on all levels including bursary support.

Can you see clinical engineering adding value to the medical industry, if yes, how? Definitely. A doctor or practitioner is only as good as his apparatus so the CE will always be an integral part of this and although forgotten or dumped in a garage or basement, they are the first people called when a device does not operate properly, for sure. So CE will always be at the heart of a well-run institution, always.

You are a presenter on Top Gear, which one would you be? James May

What is the craziest thing you have ever done? Ridden a bike at 300km, heard it feels like you are in a tunnel so tested the theory, and YES, it is quite scary. Mostly a conservative person!!

What does (should) membership to CEASA mean to a member, what do they gain from it? What can members add to it? Amazing network and sharing of Knowledge from people in our field

How do you think the South African landscape for medical care will change in the next 10 years?

As I said before, NHI can really change everything. ECSA Registration can also have an impact if DOH implement without consultation with industry and associated bodies. Lack of skills or loss of skills to emigration will also affect it. We need to build, maintain and retain the skills. Companies and institutions must appreciate what the CE means in their facility and appreciate. This will help retain.

Share some of your interests Golf, Caravanning, sport in general, some TV soapies, gardening, friends and networking. I like to be with people, hate being alone mostly. Like to help people and see people succeed, adopt the sharing is caring approach.

Nando's or McDonalds? Nando's

How do you think Clinical engineering can be made more attractive for prospective students? RESPECT and dignity for the career. I would like to make this my approach if time allows to visit schools on career days and pitch the career. It is a professional and honourable career where you save lives, literally.

How does CEASA and SAFHE fit together We have a close fit in the environment we all work in, once you enter a hospital facility, we are one. They care for the buildings and attached goodies, we attend to the loose fittings, so to speak. We flow into each other like a river and the ocean, one big waterway, so for now we are the river and they are the bigger ocean, but both give life to this earth one way or the other, both integral parts to the hospital.

How to guide

Soldering

Step 1: Preparation

Strip your cable. This means removing the insulation from the end of the wire and exposing the copper core. You can either use a wire stripper, side cutters, or a knife to do this.

If you are using side cutters position them about 10mm (1/2 inch) from the end, and gently squeeze the cutters into the insulation to pierce it, but not far enough to cut the copper strands of the core. Open the cutters slightly so you can turn the wire and pierce the rest of the insulation. Now you should be able to slide the insulation off with your cutters, or pull it off with your fingers. This may sound a tedious method, but in no time at all you will be able to do it in two cuts and a flick of the cutters.

Step 2: Tinning

Whatever it is you are soldering, you should 'tin' both contacts before you attempt to solder them. This coats or fills the wires or connector contacts with solder so you can easily melt them together

Step 3: Soldering

This step can often be the easiest when soldering audio cables. You simply need to place your soldering iron onto the contact to melt the solder. When the solder in the contact melts, slide the wire into the contact. Remove the iron and hold the wire still while the solder solidifies again.



You will see the solder 'set' as it goes hard.

This should all take around 1-3 seconds.

- A good solder joint will be smooth and shiny.
- If the joint is dull and crinkly, the wire probably moved during soldering.
- If you have taken too long it will have solder spikes.

If it does not go so well, you may find the insulation has melted, or there is too much stripped wire showing. If this is the case, you should desolder the joint and start again.

Step 4: Cleaning

You should clean your tip after each use. Some solder stations come with a little pad at the base of the holder. If you have one of these, get into the habit of wiping the tip on the pad each time you apply solder with it.

Western Cape Branch Social Event

by James Herbert

The CEASA Western Cape branch aims at having two or three social events per year to get members together and have some fun after hours. On Thursday afternoon the 5th of May a go carting event was held in Kenilworth Cape Town. The event was fully booked and 48 delegates attended (Pic - 48 members attending). 6 Teams of 8 members each participated in a two hour endurance race in a very competitive and exiting atmosphere all around the track (Pic - Drivers having fun). Drivers raced for 10 to 15 minutes at a time and there always had to be a driver behind the steer of the team car. The officials were very strict and dished out penalties for dangerous and reckless driving, etc. which added to the electric atmosphere.

Hendrik Radyn (below left) was recently discharged from hospital after undergoing bypass surgery and we were very happy to see him at the event to show his support. We were amazed by the good female support for an event like this and had a number of very competitive female drivers. Here the team from SSEM poses for a picture before the race. (Pic - Female drivers)



Regional Upcoming Events

Western Cape

December Business breakfast

Gauteng Meeting Dates 2012

13 February
15 May
14 August
13 November

Industry Survey Feedback

by Leonie Ewald

CEASA developed the first industry feedback survey which was run online from 1 to 31 August. These survey questions were designed around key and current industry topics like ECSA registration and the supply chain of new technicians. In 33 questions we attempted to pinpoint both personal and professional opinions on the following topics.

- Newly Trained Technicians
- Practical Experience
- Current curriculum content
- Required skills
- Industry Regulation (ECSA)
- Industry Requirements

There were a total of 131 participants and the feedback does show an industry trend in perceptions around needs and solutions of both new recruits as well as the controversial topic, registration. Here follows a quick snapshot of some of the key questions.

Key questions	Highest rating
Min Qualifications required	81% diploma
How much practical Exp is required	67% 12 months
Companies willing to take part in interns	84% YES
Elective missing from current curriculum	Soft skills, time and self management
What basic skills is required	Hand skills, tools knowledge, soft skills
ECSA registration a requirement	42% good to have
Necessity of some kind of registration	53% absolute necessary
Top 3 tasks technicians are required to do	1 Repair And Maintenance 2 Use of soft skill 3 Fault finding



Gauteng Competition 2012

Win a trip to Dubai and visit Arab Health in 2013 (flights, accommodation, visa and daily allowance incl)

How to Enter:

You are automatically entered every time you sign the attendance register at meetings throughout the year.

Rules:

Anyone is Eligible to enter, but you must:

- Be a paid-up Member to Dec 2012
- Have attended all CEASA Gauteng meetings in 2012
- Have a valid passport

For the full survey and the full report you can contact CEASA at ceasagauteng@gmail.com. This is also available on the CEASA website.

SAFHE / CEASA Congress

By Paolo Boschetti

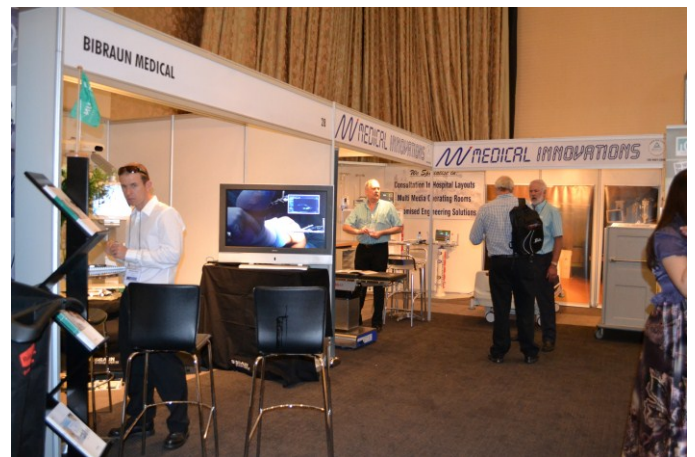
Our Bi-annual congress, in conjunction with SAFHE, was held at Birchwood Congress center in Boksburg. The topic appropriately being **More for less - Health care Delivery in a resource constrained environment**. Once again it proved to be very successful with all major players in the Medical industry taking part. With over 300 delegates attending as well as over 30 companies on display, the congress managed to put on three tracks including one track dedicated to Clinical Engineering. The papers presented were all at a high standard making sure we were all left with a considerable task in ensuring the future of Health care and Clinical engineering as a whole.

The congress was officially opened by the honorable Minister of Health Mr. Aaron Motsoaledi and attended by special dignitaries such as the Deputy Director General of Health Technology, Ms. Nonkonzo Molai, who are committed to working closely with CEASA to advance the needs analysis for Clinical engineering in terms of training and qualifications, this being in conjunction with all the major players in the industry such as the various training institutes and the Engineering Council of South Africa (ECSA).

The congress once again also proved to be a great platform where all players in the industry were able to network and interact in a similar comfortable environment. The congress also proved once again that our relationship with SAFHE is growing from strength to strength and we would like to take this opportunity in thanking SAFHE, especially the Chairman of the Northern sector, Mr. Robin O'Reilly and his committee for their dedication and hard work in making the congress a success.



MP Deputy DG of Health Technology - Ms. Nonkonzo Molai delivering her speech at the Congress



Supplier stands at the Congress



Delegates networking during the Congress