Biomedical/Clinical Engineering Association of Ireland

BEAI

Aontas Bithleighis Innealtóireacht na hÉireann

24th Annual Biomedical & Clinical Engineering Scientific Conference

'Clinical Engineering: Experiences & Advancements'

Friday 4th October 2019
Clayton Hotel, Silver Springs, Cork

Endorsed by:

IFMBE
Clinical Engineering Division

Gold Sponsor:

OLYMPUS

‘To be the voice and thought leader for medical technology professionals in Ireland’

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Dear Conference Attendees,

It gives me great pleasure to welcome you all here today to our 24th BEAI Annual Scientific Conference. We are delighted to host it in Cork this year, following on from last year's successful conference in Galway. We made a decision a couple of years ago to bring the conference to various parts of the country to ensure that all of our members had their input to the event, and this year, our local colleagues from Cork assisted in the planning and running of the event.

We have listened to your feedback and ideas from previous events and have prepared the programme with all of this in mind. There are presentations on medical device regulation, hospital-based engineering presentations, international speakers from the United States and Singapore, and students from Cork Institute of Technology and University College Cork. This year sees the introduction of a live interview with a service user of the health service, to gain an insight into the patient's experience. I would encourage you all to get involved in the discussions during the Q&A sessions.

Once again, this year, we have utilised the model of a single Gold Sponsor and various exhibitors, allowing the attendees to network and view the products and services of over 20 medical technology companies in the one room. Please make the time to visit each of the exhibitions, and to drop into our partners stands: the HSE's Health & Social Care Professions (HSCP), the Health Products Regulatory Authority (HPRA) and the National Standards of Ireland (NSAI).

Given the pressures that the health service continues to face on an on-going basis, I feel it's important for us as engineers and as a profession clinically trained in health to showcase the contributions that engineers can make to the healthcare system. As specialists in medical technology and as part of the Health & Social Care Professions team, Clinical Engineering has a vast amount to offer the health service in its objective to improve the delivery of patient care in a safe, high quality and effective manner. Technological advances have brought about some of the greatest improvements in medicine today, but unless managed appropriately, it can also introduce significant risks to the safe delivery of healthcare. Clinical Engineers are uniquely placed to manage healthcare technology and to advise both the acute and community services on medical device and healthcare technology management.

A significant amount of work goes into making this event what it is and takes commitment of the highest order to make sure it all runs according to plan. I would like to recognise the team this year, led by Eoghan Hayden, which comprised of Brian Farrell, Oleg Shrolik, Bernard Murphy, Peter Grainger, John Bohane and Barbara Conway. I'd like to thank Olympus as our Gold Sponsor for 2019 - Marc Halligan and his team have provided tremendous support and input in making this day possible. And finally, I'd like to thank each of our Session Chairperson's, who facilitate the presentations and Q&A sessions, and ensure the day is enjoyable for all.

I'd ask you all to join me in extending a warm welcome to our international colleagues, and to the IFMBE, who endorse this conference. The BEAI are proud to have a close working relationship with our international organisation dating back to 1996, and members of the BEAI continue to collaborate and work with the IFMBE on their working groups, events and policy development for the profession.

I hope you find the day to be insightful, thought provoking and useful!

Best wishes and safe journey home,

Brian Kearney,
Chairperson, BEAI

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Exhibitions by:

Accuscience, Aquilant, Baxter, B Braun, Cardiac Services, Dräger, Fleming Medical, Hill-Rom, HSL, Irish Hospital Supplies Ltd, MDI Medical, Norso Medical, Oxygen Care, Rigel Medical, Siemens Healthineers, MED Surgical, Sword Medical Advanced Healthcare Solutions, Tenacore, Wassenburg Medical, Whitewater quality in purity

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PROGRAMME OF EVENTS

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8.00am	**Registration**
8.00 – 9.00am	**Refreshments & Networking - *Exhibition Area***
9.00 – 9.05am	**Opening Address** *Brian Kearney - Chairperson, BEAI*
Session 1 – Chairperson: Colm Holland	
9.05 – 9.25am	**Medical Content Management - Enabling Interoperability & Continuum of Care** *Will Wright, Olympus*
9.25 – 09.40am	**New Medical Device Regulations** *Anne Tobin, HPRA*
09.40 – 09.55am	**BREXIT Implications** *Procurement*
09.55 - 10.05am	***Session Discussion***
10.05 – 10.45am	**Refreshments & Networking - *Exhibition Area***
Session 2 – Peter Grainger: Clinical Engineering - An International Perspective	
10.45 – 11.10am	**Aligning National and Global Health Technology Priorities in Ireland** *Tom Judd Chairperson, IFMBE CED*
	Where is the Value of Clinical Engineering? *Dr. Yadin David, IFMBE CED Executive Board*
	IFMBE/CED Recognition of Certification Programs for Clinical Engineering Practitioners *James Wear, IFMBE CED, Chair of Credentialing Project Committee that Developed Plan for IRB*
11.10 – 11.40am	**Clinical Engineering in Singapore and its Hospitals** *Peck Ha TAN, Honorary Secretary, Singapore BES*
11.45 – 12.00pm	**Clinical Engineering - The Future of Clinical Engineering** *Richard Scott, Head of CE at Sheffield Teaching Hospitals NHS Foundation Trust*
12.00 – 12.10am	***Session Discussion***
Session 3 – Chairperson: John Bohane	
12.10 – 12.20pm	**An Introduction to Clinical Gait Analysis** *Darren Dawson, Cork Institute of Technology*
12.20 - 12.30pm	**Magnetic Self-Assembling Tool for Minimally Invasive Surgery** *Tim Fass, University College Cork*
12.30 – 12.45am	**Tackling Public Sector Challenges** *Marguerite Bourke, Small Business Innovation Research (SBIR)*
12.45 – 1.00pm	**Patient Experience Interview** *Ronan Duffy*
1.00 – 1.10pm	***Session Discussion***
1.10 – 2.30pm	**Lunch & Networking - *Exhibition Area***
Session 4 – Chairperson: Marc Halligan	
2.30 – 2.45pm	**The Use of 3D Printing Technology in the Creation of Patient Specific Facial Prostheses** *Ross Sherwood, St. James Hospital*
2.45 – 3.05pm	**The Role of Mobile in Next Generation EPRs** *Paul Volkaerts / Nerve Centre*
3.05 – 3.20pm	**BEAI Professional Development & Workforce Planning Questionnaire - National Findings** *Aaron O'Reilly/Peter Grainger*
3.20 – 3.30pm	***Session Discussion***
3.30 – 4.00pm	**Refreshments & Networking - *Exhibition Area***
Session 5 – Chairperson: Sheila Knightly	
4.00 – 4.20pm	***Award Ceremony*** *BEAI*
4.20 – 4.30pm	***Closing Remarks*** *Brian Kearney – Chairperson, BEAI*

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ABSTRACTS

Medical Content Management – Enabling Interoperability & Continuum of Care

Will Wright,
Olympus

Biography

Will Wright is Director of Global Commercialization at Olympus, Inc. for Systems Integration. A 16-year veteran of medical A/V and systems integration. Prior experience includes network management at Cisco Systems and VAR computer resellers.

Abstract

Olympus connects health care teams with clear visual information and collaborative insights across a wider health care environment. The scalable and innovative solution optimized for Olympus equipment and compatible with virtually any image and video source simplifies collaboration with colleagues and patients — maximizing insight and efficiency before, during and after the procedure. The hospital-wide medical content management system enables knowledge sharing, training and professional improvement.

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New Medical Device Regulations

Anne Tobin,
HPRA

Biography

Anne joined the HPRA in 2002 originally in pharmaceutical assessment. Anne moved to medical devices in 2007 and is currently Assessment and Surveillance Manager within the Medical Devices Department. Anne's key focus has been on managing the HPRA medical device vigilance section, ensuring all vigilance reports are managed appropriately. Her focus now includes other regulatory aspects including classification and market surveillance. Anne has been involved in many initiatives and working groups both at a National and European level.

Anne's academic background is in Microbiology / Biotechnology and Industrial Pharmaceutical Science. Prior to joining the HPRA, Anne worked in private industry in the IVD sector.

Abstract

Regulation 2017/745 on Medical Devices and Regulation 2017/746 on *In-Vitro* Diagnostic Devices were formally published in the Official Journal of the European Union on 5th May 2017. This means that both Regulations will enter into force at the end of May 2017. The Regulations will have a staggered transitional period with some aspects becoming legally binding after 6 months, full application of the medical devices (MDR) after 3 years i.e. May 2020 and full application of the *in-vitro* diagnostics (IVDR) after 5 years i.e. May 2022.

The MDR and IVDR represent a significant development and strengthening of the existing regulatory system for medical devices in Europe and will replace the original Directives which have been in place for over 25 years. Also, with the legislation now being in the form of a Regulation, rather than a Directive, means that the EU law is directly applicable at national level without requiring transposition through specific national legislation. This should allow for greater legal certainty and prevent variation in the approach taken or in the rules relating to medical devices that are applied across EU Member States

This presentation will focus on the key aspects of the new regulations noting that they retain the existing principles and fundamental components of the current regulatory system, but each element is strengthened and better defined. The improvements are made based on experience of implementing the existing Directives since the mid-1990s, with the aim of addressing identified gaps or weaknesses in the existing system and in light of technological and regulatory developments in the medical technology sector.

Aligning National and Global Health Technology Priorities in Ireland

Tom Judd,
Chairperson, IFMBE CED

Biography

Thomas Judd, MS, PE, CCE, CPHQ, CPHIMS, FACCE, FHIMSS, FAIMBE
IFMBE CED Board Chair, USA, https://ced.ifmbe.org/
Tom has been in healthcare for 44 years, 25 with Kaiser Permanente (half as regional Quality & Safety Director, half on national CE leadership team); earlier 15 years in CE leadership roles in teaching, community, and various health system hospitals.
Tom is currently:

- Board Chair of IFMBE CE Division (CED); developing CE contacts in 200 countries with CED;
- Certified in Clinical Engineering (CE), Healthcare Quality, and Healthcare Information;
- Fellow of ACCE, HIMSS, and AIMBE;
- Started the ACCE Advanced CE Seminars for health leaders in 1991; today over 50 seminars involving 90 countries; https://accenet.org/International/Pages/PreviousWorkshops.aspx
- WHO/PAHO Health Technology Advisor since 1989;
- On 3 NGO faith-based boards doing Maternal Child Health improvements in Haiti, North Macedonia, and Central Asia.

Abstract

The International Federation for Medical and Biological Engineering (IFMBE) Clinical Engineering Division (CED) is a global federation of Clinical Engineers (CEs) and allied professionals dedicated to the advancement of safe and effective health technology (HT) design, deployment and management programs. CED engages leaders and societies of CE worldwide now measured as 800K+ practitioners (WHO, 2018) with contacts in 200 countries. In 2018-2021, CED meets global CE needs through:

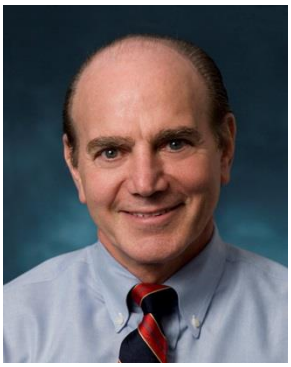
- Recognition, e.g., promoting a Global CE Journal (GCEJ); facilitating Global CE Day - October 21
- Capacity Building, e.g., Education & Training
- Professional Exchange, e.g., leading Global Conferences, & providing a platform for collaboration.

CED collected and published (GCEJ 2018) 400 CE Success Stories (CE SS) from 125 countries, in the following 6 categories, with scientifically rigorous methodology and occurring over the years from 2007-2018:

- Access
- Innovation
- Health Systems
- HT Management
- Digital Health
- Quality & Safety

How has Ireland Clinical Engineering been developing in recent years? This presentation will compare global health priorities with the global CE SS to see how well they are aligned. And then compare Ireland's health goals with these global priorities and suggest how Irish CEs are and could be contributing to their country's most significant health issues.

Where is the Value in Clinical Engineering?



Dr. Yadin David,
IFMBE CED Executive Board

Biography

Dr. David is principal at Biomedical Engineering Consultants, LLC, firm providing expertise to commercialized and improve health-related products through its life-cycle management. Services of health technology included product innovation, prototyping, telemedicine program design, regulatory compliance and forensic engineering services provided to hospitals, manufacturing industries, and litigation worldwide. Previously, Dr. David headed the Biomedical Engineering Department and the Centre for Telehealth at the largest medical centre in the US.

Dr. David holds adjunct academic appointment at the University of Texas - School of Public Health. In addition, he is also Honorary Director of Clinical Engineering at Capital Medical University in China, visiting professor at the Inner Mongolia People Hospital and previously at Tec de Monterrey school of Medicine in Mexico. Dr. David has served as chairman and member of FDA advisory panels. He is recipient of the FDA commissioner's special citation, the 2008 ACCE/AAMI Humanitarian Engineering award, the 2011 Lifetime achievement award, of the Italian and Chinese clinical engineering associations' awards, and elected in 2018 into the Hall of Fame of the American College of Clinical Engineering. He was also inducted into the WVU Academy of Distinguished Alumni of Engineering and Computer Science and into the WVU Academy of Chemical Engineering. Has served as adviser to the World Health Organization (WHO), as founder and 1st president of the Centre for Telemedicine and e-Health Law (CTeL) in Washington, D.C., and as Editor-in-Chief of Global Clinical Engineering Journal (www.GlobalCE.org).

David holds B.Sc., M.Sc. and Doctorate degrees, from West Virginia University (WVU). He is licensed professional engineer (P.E.), certified in clinical engineering (C.C.E.), Board certified in Forensic Engineering (NAFE), Fellow of the American Board of Forensic Engineering and Technology, Fellow of the American Institute of Medical and Biological Engineering (AIMBE), and Sr. member of IEEE society. Served as the founder & first president of the American College of Clinical Engineering (ACCE), of non-profit Healthcare Technology Foundation (www.thehtf.org). Dr. David is member of technical guidance writing bodies, serves on Board of International Federation of Biological and Medical Engineering Clinical Engineering Division, Advisory committee WVU College of Engineering and Mineral Sciences, and has served on Editorial Board for Health and Technology journal and the Biomedical Safety and Standards newsletter. He has published numerous manuscripts, chapters and books including the Getting Started with IEC80001, Biomedical Engineering Handbook, Medical Technology Management and co-editor of Clinical Engineering (both by CRC Press).

Abstract

The intersection of technological changes and societal evolution has transformed every aspect of human life. These advancements are transforming how healthcare knowledge is expanding and accelerating the outreach of critical medical services. While this transformation facilitates new opportunities simultaneously it also introduces challenges. The dependence of health, rehabilitation, and wellness programs on the appropriate technology for the delivery of services

has never been greater. It is essential therefore, that HT life cycles be optimally managed, by qualified professionals who are qualified to safely guide the development, evaluation, installation, integration, performance assurance, and risk mitigation of HT and must be in position to lead and service it. Trained Clinical Engineers (CE) and Biomedical Technicians (BMT) have been recognized by World Health Organization (WHO) as essential to providing this critical role.

Being Professional means the public declaration that individual attained expertise, knowledge, commitment to ongoing development, responsibility to quality judgement, to ethics and to demonstration of these characteristics through credentialing program1. Our field must adopt minimum requirements for education and/or experience levels and to international credentialing program that communicate to the public our mastering of the qualifications and skills that management of safe and effective HT life cycles mandate. We clearly need to improve our engagement with production of peer-review publications, such as the Global Clinical Engineering Journal (www.GlobalCE.org), that further inform about best practices and success stories2 in the daily application of CE professional around the globe.

1. *The Professional Clinical Engineer, Y. David, Journal of Clinical Engineering, Sept/Oct. 1988.*
2. *Making a Difference – Global Health Technology Success Stories: Overview of over 400 submissions from 125 Countries, T. Judd, Y. David, Global Clinical Engineering Journal, Vol., No.1, 2018.*

IFMBE/CED Recognition of Certification Programs for Clinical Engineering Practitioners

James Wear
Chair of the Credentialing Project Committee that Developed Plan for the IRB

Biography

James O. Wear holds a B.S. (l959), M.S. (l960), and Ph.D. (l962) from the University of Arkansas (Fayetteville, AR) in Physical Chemistry. He was Director, Engineering Training Center, Department of Veterans Affairs responsible for training of all engineering and safety personnel in their 172 hospitals. from December 1965 until he retired in February 2007. He was Professor and Head, Biomedical Instrumentation Technology, College of Health-Related Professions, University of Arkansas for Medical Sciences from 1972-2000. He has served on the Boards of Examiners for Biomedical Engineering Technicians, Clinical Engineers (twice), and Health Care Safety Professionals. He has written over 150 publications in national journals, twenty chapters in books and co-authored eight books. He has made over 200 presentations at regional, national and international meetings and lectured in 15 countries.

Abstract

The IFMBE/Clinical Engineering Division has established an International Registration Board (IRB) to recognize organizations that certify or register clinical engineering practitioners (CEPs). The IRB has 8 members appointed by the CED Board and the members are experienced Clinical Engineering Practitioners. The IRB will maintain a list of recognized organizations that certify or register CEPs but will not maintain a list of the individuals certified/registered. The National Examining Authority (NEA) that performs certification/registration can submit information on their program to the IRB for recognition. This will include detail information on the program and how it goes about certifying or registering individuals. Once recognized a program will have a renewal every three years to assure that it is still an operational program.

Since there are no specific guidelines for programs to certify/register CEPs, the IRB will have to evaluate each NEA submission in detail. The IRB will need to determine that the individuals certified/registered are qualified practicing CEPs and the program is well managed. The NEA must have a set of By-Laws and a Code of Ethics. Certification programs may be based on credentials only or programs based on exams and credentials. Registration programs may be based on credentials including experience. It is not recommended that an engineering degree be required since all clinical engineering practitioners do not have engineering degrees.

Clinical Engineering in Singapore & its Hospitals.

Peck Ha TAN,
Honorary Secretary, Singapore BES – Irish/Singapore Collaboration

Biography

Peck Ha TAN holds a MSc in Biomedical Engineering from the University of Aberdeen, United Kingdom. She is currently a senior lecturer at the School of Engineering, Ngee Ann Polytechnic. She has been a consultant and trainer in biomedical engineering in Singapore, Myanmar and Vietnam. Peck Ha is the Honorary Secretary of the Biomedical Engineering Society (Singapore) and a member of IFMBE's Developing Countries Working Group.

Abstract

Singapore's public hospitals are grouped into 3 main clusters, with each cluster managing its own medical devices. Practices differ among the clusters. There is a governmental push to move towards a centralized biomedical engineering service group, requiring a standardization of practices.

This presentation will discuss the management of medical devices in the public hospitals in general. Comparison of differences will be made using 2 of the clusters as case studies. Some of the current challenges will also be highlighted.

The Future of Clinical Engineering

Richard Scott, Head of Clinical Engineering,
Sheffield Teaching Hospitals
NHS Foundation Trust, Sheffield, UK

Biography

Richard graduated with an electronics degree from the Polytechnic of North Staffordshire, UK in 1984, which included an industrial placement in the Clinical Research Centre, Division of Anaesthesia, Harrow, UK. During this course Richard developed an interest in medical instrumentation whilst working on projects to monitor the depth of anaesthesia via electrical evoked responses and the assessment of respiratory mechanics via the oscillatory airflow technique.

A career in the UK National Health Service, (NHS), followed, initially as an electronic design engineer working at the Royal United Hospital, Bath, UK in the Wessex Regional Medical Physics Service, where Richard developed medical devices and performed quality assurance tests on medical equipment. A Master's degree in medical electronics and physics was undertaken at St Bartholomew's Hospital, University of London, (1985-87) and a PhD, completed in 1993, at the University of Bath, further developed the respiratory impedance work previously undertaken. Richard was instrumental in developing the medical equipment management service at the hospital to ensure that healthcare technologies were well managed.

In 1995 he moved to Sherwood Forest Hospitals NHS Trust, Nottinghamshire, UK to lead the Medical Equipment Management Department, working as a Consultant Clinical Scientist. The department developed equipment management principles and practice to ensure the safe and effective life cycle management of all the hospital's medical devices. In December 2016 the opportunity arose to move to Sheffield Teaching Hospitals NHS Trust, Sheffield, UK as Head of Clinical Engineering, where Richard leads a 70 strong team involved in medical device design and development as well as provision of healthcare technology management activities.

Richard is a registered Clinical Scientist, (with the Health and Care Professions Council, UK), a Chartered Engineer and Member of the Institute of Engineering and Technology, (IET). A Chartered Scientist and Fellow of the Institute of Physics and Engineering in Medicine, (IPEM). Richard has an interest in healthcare education and has had 4 years' experience as the Professional Lead for Clinical Engineering at the National School of Healthcare Science, (part of Health Education England), following a period as a Professional Advisor to NHS England's Chief Scientific Officer. In 2016 Richard was accepted onto the Academy for Healthcare Science's, (AHCS), newly formed Higher Specialist Scientist Register as a Clinical Biomedical Engineer.

Richard has been active in standards development since 1989 when he joined the BSI Alarm Standard committee CH/16, going on to serve as a UK expert to IEC TC 62/SC 62A JWG2 contributing to publication of IEC 60601-1-8 the collateral standard for general requirements, tests and guidance for alarm systems. Since 1999 he has acted in a liaison capacity between the BSI and IPEM to ensure effective NHS technical representation on electro-medical standards groups within the UK and continues to sit on BSI CH/100 Healthcare and Medical Equipment committee. Richard is currently chair of IEC SC 62A, the committee responsible for common aspects of electrical equipment used in medical practice Richard was recently on the drafting committee of BS 7000, a service accreditation standard, for UK medical physics and clinical engineering departments.

In summary, Richard is a practicing clinical engineer with 35 years of medical devices within the UK NHS, with an active interest in standards development. Over the years he has presented widely at UK scientific symposia on medical device management issues and his respiratory research interests. He has recently co-authored a textbook, Healthcare Technology Management: a systematic approach, promoting the need to maximise the value gained from technologies for patient benefit.

Abstract

Clinical Engineering has made a significant contribution to the delivery of healthcare by supporting medical equipment. Reviewing the last 30 years we can see how equipment management services have developed to manage the lifecycle of equipment used in hospitals and community settings. Medical equipment management services have evolved to ensure that the risks associated with the acquisition and use of medical devices are minimised. Quality management systems such as ISO 9001 have been introduced to give external assurance regarding service delivery standards. Great work has been done across the profession in supporting equipment.

We now need to think where Clinical Engineering goes next; in a changing world where patients will play a greater part in their care, technology is ever advancing, and the role of the professional is changing. The profession needs to reflect on these changes and prepare itself for a future where medical devices may take different forms, be much more interconnected, home based and used by non-healthcare professionals. Clinical Engineering has a fantastic opportunity to not only support care but advance care for the benefit of patients by embracing a systems approach to healthcare technology management.

An Introduction to Clinical Gait Analysis

Darren Dawson,
Cork Institute of Technology

Biography
Darren graduated with an honours degree in Biomedical Engineering and went on to complete his PhD in Biomechanics at Cork Institute of Technology. His research focused on the development of an improved biomechanical model for three-dimensional motion analyses. He then went on to work in new product introductions in DePuy Synthes in Cork on the development of a new knee implant. Darren now lectures in CIT, primarily lecturing in Biomechanics.

Abstract
To assist in evaluating patients with gait pathologies pre and post-surgical intervention, the Mechanical, Biomedical & Manufacturing Engineering Department of CIT is actively involved in providing a Clinical Gait Analysis service to patients of Enable Ireland. An introduction to the facility utilised to perform gait analysis is presented. The procedures involved in the process and how results are used as part of the clinical evaluation process are also discussed.

Magnetic Self-Assembling Tool for Minimally Invasive Surgery

Tim Fass,
University College Cork

Biography
Tim H. Fass is a PhD candidate at University College Cork and a member of the Tyndall National Institute in the research team of Dr. Pádraig Cantillon-Murphy. Tim H. Fass did his Master's in Engineering Science at the TU-Berlin, with a specialization in robotics and material science. He researched in cooperation with the Koç University in Istanbul (2011) and the University of Tokyo (2012) and worked in the Robotics and Biology Laboratory of the TU-Berlin (2015-2016).

Abstract
Self-assembly enables the deployment of the surgical tools as smaller parts, which can then autonomously assemble inside the body. If successful, reliable self-assembling processes may radically improve the current limitations on the size and shape of surgery tools in minimally invasive surgery. Utilizing magnetic self-assembly we developed a novel concept of self-folding magnetic chains, potentially creating a new generation of self-assembling surgery tools.

Tackling Public Sector Challenges

Marguerite Bourke,
Small Business Innovation Research (SBIR)

Biography

https://www.linkedin.com/in/margueritebourke/

Marguerite has thirteen years experience working with Enterprise Ireland, the Irish Government's trade development agency. Her career has spanned advising and supporting start up companies to grow and internationalise their businesses. She worked as a Market Adviser in Toronto assisting Irish companies to increase their exports into the Canadian market for four years. She also spent two years working for Scotiabank, Canada in an internal communications and change management capacity. Most recently in October 2017, she took over the Small Business Innovation Research (SBIR) brief and manages SBIR Ireland, with responsibility for a €2 million fund, spanning 20 competitive Challenges.

Abstract

Small Business Innovation Research (SBIR) is an Enterprise Ireland administered pre-commercial procurement initiative. Its purpose is to drive innovation across all sections of the Irish Public Sector, by solving societal problems in new ways.

SBIR enables robust engagement between the public sector and technology rich companies, through competitive Challenges. Essentially a public sector body procures R&D to develop a new solution, in cases where there is an 'unmet need', so no off the shelf solution is available.

To date, EI has supported 20 Challenges in collaboration with local authorities, government agencies and departments on areas such as diabetes management, rural transport and illegal dumping. Marguerite will discuss the progress of SBIR Ireland to date and inform the audience of a new competitive call which launches in October 2019.

The Use of 3D Printing Technologies in the Creation of Patient Specific Facial Prostheses

Ross Sherwood,
St. James Hospital

Biography

Ross carried out a modern apprenticeship in Instrumentation and Control in the North Sea Oil Industry in Scotland and worked in this sector for 4 years before moving to Ireland and beginning his work as a clinical engineering technician in St James's Hospital, Dublin. Over the past 3 years he has been carrying out work within the Clinical Engineering Group on general medical equipment and in the critical care environment. Alongside this he has been conducting research in the area of 3D printing and its application in the healthcare environment. He has recently completed a degree in Medical Device and Bio-pharmaceutical Technology.

Abstract

Personalised medicine aims to optimise patient outcomes by tailoring treatments and interventions to the individual. While this approach can offer a number of benefits to patients and clinicians, it can be accompanied by significant overheads in terms of resources and time. Prostheses exist in order to restore and replicate the normal functions and appearance of the body but if these are not individually tailored to the patient's individual needs then a true restoration cannot be fully achieved.

Traditionally a labour intensive process, the fabrication of craniofacial prostheses involves multiple steps such as taking a plaster cast of the area to be treated, hand carving wax models of the restoration and numerous meetings with the patient to alter this wax restoration before making a final prosthesis out of a medical grade silicone.

Utilising the patient's pre-existing CT images, 3D scanning and 3D printing technology, a patient specific prosthesis can be created with improved efficiency and accuracy.

This presentation demonstrates the methods used to create patient specific craniofacial prostheses using a variety of techniques including medical imaging and 3D scanning techniques alongside traditional Maxillo Facial manufacturing methods.

The benefits of using this method include reduced manufacturing time, decreased outpatient appointments, improved personalised outcomes and a repeatable process allowing multiple prostheses to be made.

The Role of Mobile in Next Generation EPRs

Paul Volkaerts,
Nerve Centre

Biography

Nervecentre founder and Chief Executive Officer, Paul Volkaerts, had the vision from day one that mobile technology has a major part to play in improving patient care in hospitals. Paul has kept this ethos as the main objective for all Nervecentre projects. Since the start in 2010, Nervecentre has grown rapidly and now has relationships with over 40 healthcare trusts and is implemented in over 100 hospitals. In 2018, Nervecentre successfully launched a Next Generation EPR – the first new EPR for the NHS in twenty years.

Previous to Nervecentre, Paul's background combined strong technical roles and sales and business development roles for blue chip organisations such as Cisco Systems. Whilst in Cisco Paul doubled the sales of collaboration technologies into healthcare by leading a transformation towards selling the clinical benefits of the technologies, for which Paul was awarded the coveted Chairman's Club award.

Paul Volkaerts is also an original fellow of the NHS Innovation Accelerator (NIA), a fellowship programme which is being delivered by NHS England with the aim to create the conditions and cultural change necessary for proven innovations to be adopted faster and more systematically through the NHS, and to deliver examples into practice for demonstrable patient and population benefit.

BEAI Professional Development & Workforce Planning Questionnaire – National Findings

Aaron O'Reilly, Peter Grainger,

Aaron O'Reilly graduated from Dublin Institute of Technology with a B.Eng. (hons) in Manufacturing/Mechanical Engineering in 2007. He also holds a MSc. in Bioengineering from Trinity College Dublin, with primary research on the skin dose delivered to patients during endovascular aneurysm repair procedures.
On graduation in 2011 he joined the St. Luke's Radiation Oncology Network where he is now the Principal Clinical Engineering Technician at the Beaumont Campus, Dublin. He manages a team of Clinical Engineers that provide a comprehensive Clinical Engineering and Radiotherapy ICT service. He has also been the hospital project manager for the install and commissioning of linear accelerators.
He currently sits on the Biomedical / Clinical Engineering Association of Ireland (BEAI) executive and education committees and is chair the professional development committee.

Peter Grainger is: - the Inceptor, and so too one of the 4 founding members, of the – Biomedical/Clinical Engineering Association of Ireland (BEAI). He presently is the professional development officer of the BEAI. Co – Chair of the International Federation of Medical and Biological Engineers (IFMBE) Membership Committee; and The European Parliament Interest Group.
He is also chairing an International Regulation project with the Clinical Engineering Division (CED) of the IFMBE and commencing to serve Ex-Officio on the IFMBE International Credentialing Board.
Peter is employed within HSE as Head Clinical Engineer / Physicist with over 30 years of experience. He is Dublin Midland Hospital Group Lead for Medical Devices Equipment in the Health Service Executive; and Vice Chair/Lead for the HSE Irish National Medical Devices Equipment Management Committee.
He is also is; Head of Department of Clinical Engineering, Medical Physics, Facilities, Medical Illustrations and Special Projects in Naas General Hospital.
Peter is Chair of the National Standards Association of Ireland's (NSAI) Technical Committee - Electrical Equipment in Medical Practice, ETCI TC 10, and The National Wiring Rules for Medical Locations - which has National responsibility for mirroring IEC & CENELCE's TC 62 Medical Electrical Equipment, and TC 64 Wiring Rules Standards Committees at International Level.

Abstract
A National Benchmarking and Self Audit of Clinical Engineering practice in Ireland conducted over a two decades period is outlined in this presentation. Benchmarking is a process whereby like groups who carry out similar roles and have similar responsibilities are compared, and an optimum level is agreed. The Clinical Engineers in Ireland have held one National Benchmarking forum over 10 years ago with the second being conducted this year.

The survey methodology used over two decades has changed from hosting a Workshop day, conducting many parallel breakout sessions and using paperwork questionnaires to remote online monkey survey distribution and computerized analysis. Twenty years ago, with all questionnaires

being in paperwork format only a crude analysis on 3,800 answered questions was undertaken at that time.

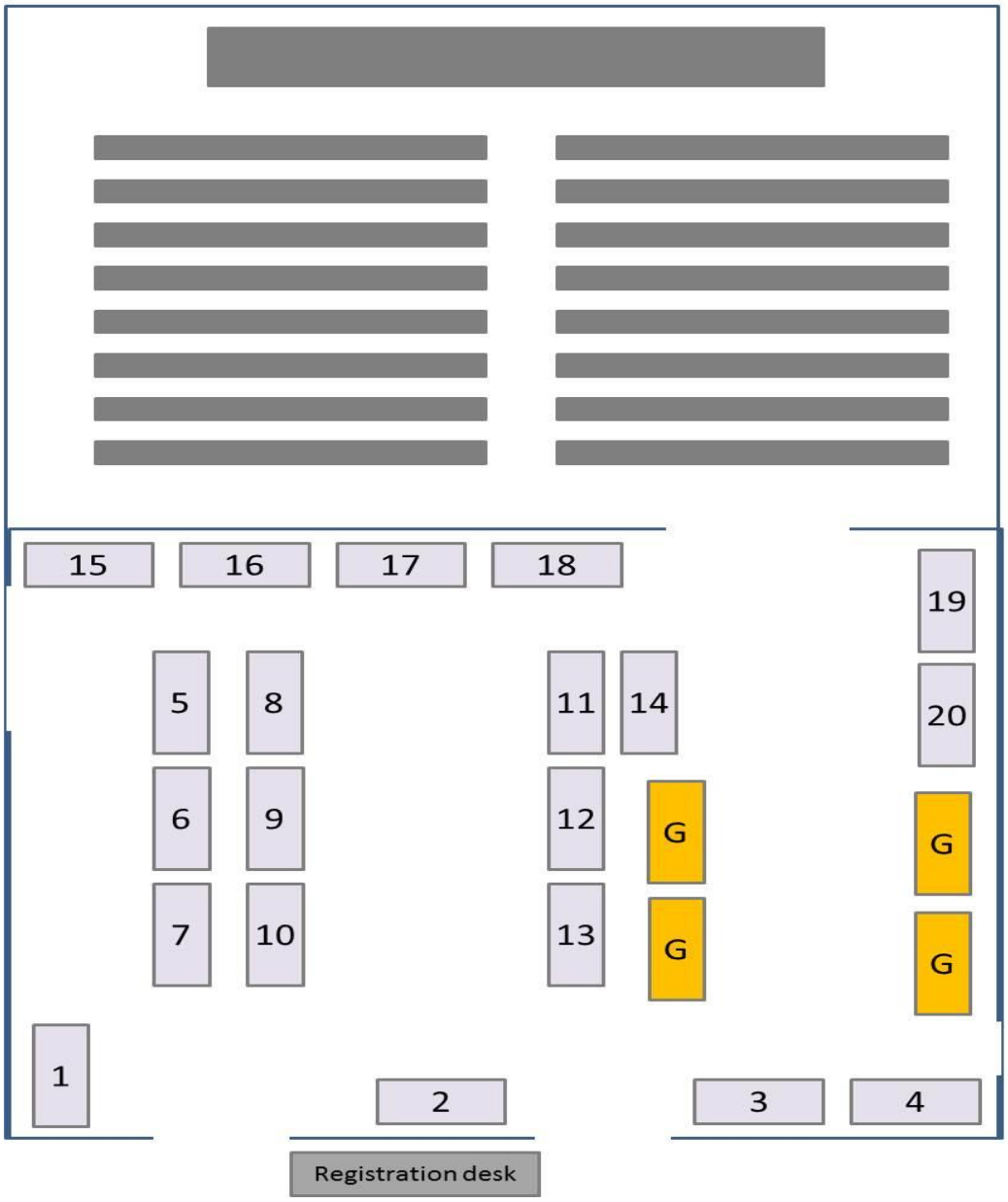
In the 2000's there were approximately 40 hospitals in Ireland with in-house Clinical Engineering services. 36 Hospitals were represented from both the public and private sectors. Approximately 80 to 90% participation level was achieved. This year a repeat survey has been conducted, using the same questionnaire title subject matter. In preparation over the past 6 months two education forums on the content and understanding of the Questionnaire has been conducted to provide commonality of understanding in order to allow effective completion of the Questionnaire. Now, with 53 hospitals in the public system a 90% + has been achieved.

This presentation highlights the results received in both Surveys, develops trends, and provides for a modern-day snapshot of Clinical Engineering Workforce information in Ireland today. This is important CE National Status information to share Internationally too.

Some of Questionnaire Subject Titles are listed below: Name, Job Title, Job Purpose, Education & Training, Roles and Responsibilities, Asset Database, Recruitment, Training, Education & Research, Documentation, Equipment Commissioning and Decommissioning, Equipment Management, Knowledge and Skills, Judgement, Leadership/Teamwork, Accountability and Responsibility.

Recently analysed trends now allow for the BEAI to discuss National Clinical Engineering Profession Workforce Planning needs, demands, deficits etc. with the Irish National Health Service Planning in an informed way, and for the benefit of Clinical Engineer Nationally.

EXHIBITORS



1. Whitewater
2. Siemens Healthineers
3. Draeger Medical
4. Hill-Rom
5. Fleming
6. Oxygen Care
7. Tenacore UK
8. MDI Medical
9. Rigel Medical
10. Irish Hospital Supplies
11. B.Braun Medical
12. Accuscience
13. MED Surgical
14. Norso Medical
15. Baxter Healthcare
16. Hospital Services Limited
17. Sword Medical
18. Cardiac Services
19. Wassenburg Medical
20. Aquilant

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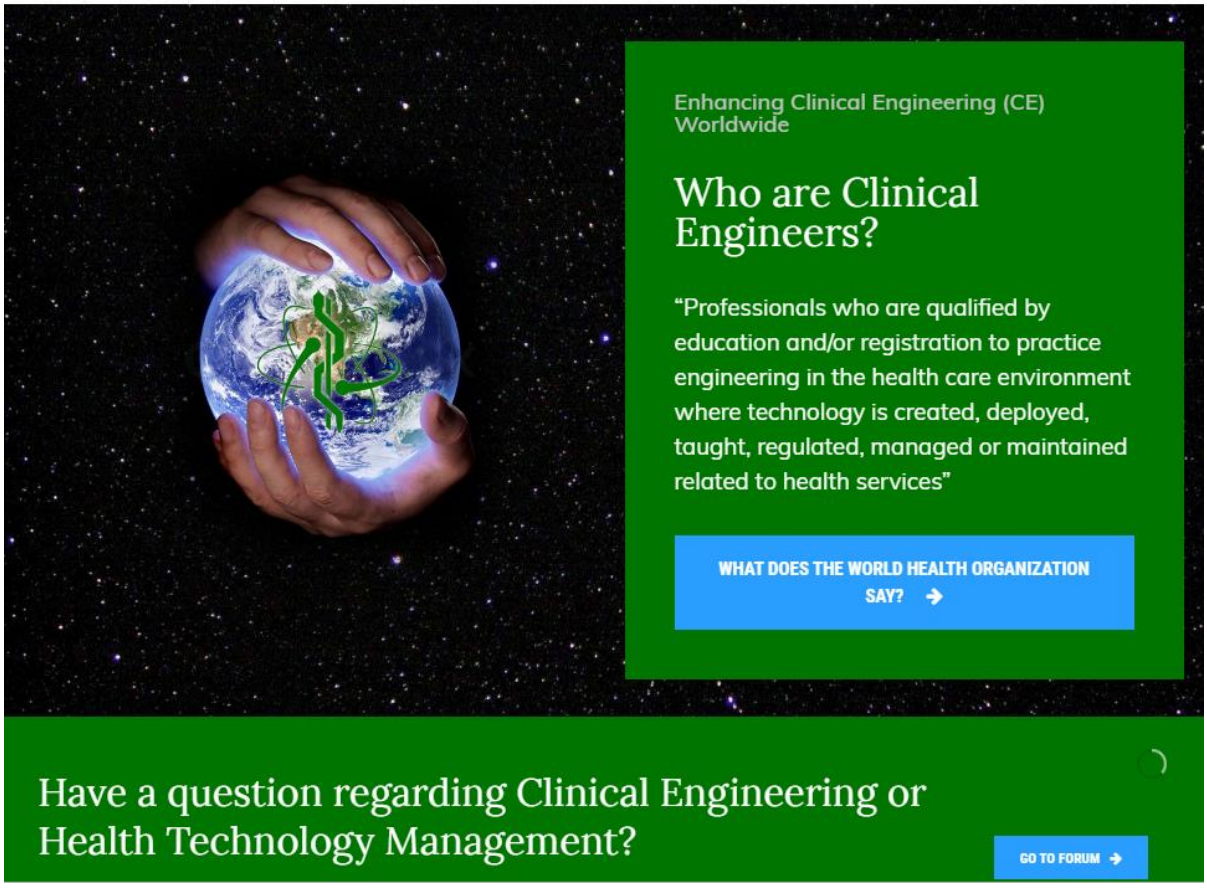
info@ced.ifmbe.org

We are CLINICAL ENGINEERING DIVISION

A global federation of Clinical Engineers and allied professionals dedicated to the advancement of safe and effective medical technology design, deployment and management programs



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2019 Global Clinical Engineering Day

To all Colleagues around the world 2019:

Global Clinical Engineering Day was initiated as celebration of the important contributions that clinical engineering professionals are making every day around the world. By celebrating we together recognize your contributions while promoting recognition for our profession and our roles in improving patient care outcomes.

Like years past, the event will be held on October 21st, it will start in China and move around the globe like the Olympic torch passes prior to the summer games. Every year we have enjoyed larger participation; this past year we broke all records.

prior to the summer games. Every year we have enjoyed larger participation; this past year we broke all records. We expect a record number of Clinical Engineers to exchange knowledge on October 21st in Rome (70+ country representatives are expected) which will provide the engine to move forward your own celebration in your locale. This past year celebration included a record of 316,385 watchers followed us on the live streaming video and the 94,900 "Likes" were recorded.

We hope that you will be part of the growing community and we thank you for taking the time and effort to produce good content and add your message thus turning our CE global torch into an inferno.

A Proclamation: Global Clincial Engineering Day

2018 Global Clinical Engineering Day live stream on October 21st, 2018 https://live.polyv.cn/watch/244330

http://global.icehtmc.com/

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III ICEHTMC

OCT 21st - 22 nd | 2019
Rome - Italy

IFMBE
Clinical Engineering Division

INTERNATIONAL CLINICAL ENGINEERING AND HEALTH TECHNOLOGY MANAGEMENT CONGRESS

The two main days of the congress are Monday the 21st and Tuesday the 22nd of October 2019. Additional activities will be organized for Sunday the 20th and Wednesday the 23rd (e.g. the Global CE summit, workshops and meetings, etc.). All updates to the program will be published on this page. See below the overall synoptic and click on the image to see more details.

III ICEHTMC Preliminary program

Rev. 16th September 2019

Sunday, 20th of October 2019

	Attendee arrivals - Exhibition setup – Registrations are open all afternoon		
12:00-13:00	**CED Board meeting** (Collaborator observers welcome)		
13:00-14.00	**International Credentialing Board meeting**	**Meeting China-Italy-CED**	
14:00-16:30	**WHO Region HT Meetings** **AMRO** (LA&C 2nd CE Summit): Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Venezuela, & others **AFRO**: Benin, Cameroon, DRC, Ethiopia, Ghana, Kenya, Nigeria, Mozambique, South Africa, Zambia & others	**EMRO:** Egypt, Lebanon, Pakistan, Saudi Arabia & others **SEARO:** Bangladesh, India, Nepal, Sri Lanka & others **WPRO:** Australia, China, Japan, Philippines, Singapore & others	**IUPESM Board**
16:30-17:00	*Transfer of attendees of the Global CE Summit and Dinner*		
17:00-22:00	**Global CE Summit & Dinner** Invited country representatives. Tickets are required. Location: hotel with terrace in centre of Rome		

Monday, 21st of October 2019

9:00-10:30	**Opening ceremony – Keynote speech** • *Stefano Bergamasco and Tom Judd introduction* • *Italy MOH & EU health leaders brief welcome address* • *Adriana Velazquez, WHO - Keynote speech* • *Global CE Day video – Connection with China*			**Handouts/special Journal issue** 1. Proceedings of Congress 2. CE-HTM Framework 3. Significant Developments in CE-HTM since 2015 Congress 4. Emerging National CE Programs	
10:30-10:45	**Networking and Refreshment Break - Exhibition**				
10:45-12:30	**Parallel session 1** *Medical equipment management in hospitals*	**Parallel session 2** *Artificial Intelligence, Big Data*	**Parallel session 3** *Technologies for home care*	Poster pres. & Exhib.	**Workshop IUPESM Part1**
12:30-14:00	**Europe CE Regional Summit, Part 1**		Networking and Lunch - Exhibition		**Luncheon Symposium CISA (sponsor)** *MD sterilization*
14:00-15:50	**Plenary session A - HTM** *Medical equipment management in hospitals (including sponsor speech from GE and Medtronic)* *Panel: Success Factors for Emerging National CE Programs*			Poster pres. & Exhib.	**Workshop IUPESM Part2**
15:50-16:00	**Networking and Refreshment Break - Exhibition**				

Download here the poster session

Click here >

Local organization

AIIC associazione italiana ingegneri clinici

Supporting organizations

See our supporting organizations

Organizing Secretariat

MCO International Group S.r.l.
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50121 Firenze
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Fax +39 055 245849
info@icehtmc2019.com
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Past events

2015 I ICEHTMC Hangzhou,China

2017 II ICEHTMC Sao Paulo, Brazil

http://www.icehtmc2019.com/program.html

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Notes

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Aontas Bithleighis Innealtóireacht na hÉireann