

# CESO 2019 Conference Program

February 4-5, 2019

The Hospital For Sick Children

Peter Gilgan Centre for Research and Learning - Main Auditorium + Room 2A/2B

686 Bay St (Corner of Bay & Elm)

Updated January 31, 2019



## Monday, February 4

### Presentations - Auditorium

Time	Session #	Topic	Detail	Speakers & Bios
8:15 - 8:45			<b>Registration and Free Breakfast</b>	
8:45 - 8:50	Session 0 Auditorium	Welcome and Opening Remarks	Welcome and Opening Remarks	Bill Gentles & Mario Ramirez
8:50 - 9:45	Session 1 Auditorium	Keynote Address	<b>Blurring the Lines between the Hospital and the Home</b> - Delivering care closer to home has long been a goal of the health system. It can be more cost effective, safer, and a better experience, when appropriate. The role of technology has been a catalyst to achieving this goal, but it's not without its drawbacks. This address will challenge us to rethink the way we design and implement technologies for delivering care outside the four walls of the hospital, but also in redefining the role the hospital for a future of self-care closer to home.	<b>Dr. Joseph Cafazzo</b> is Executive Director of Biomedical Engineering at UHN, which includes the Centre for Global eHealth Innovation and Healthcare Human Factors. He is an Associate Professor at the University of Toronto and the Wolfond Chair in Digital Health.
9:45 - 10:15	Session 2 Auditorium	Homecare Technologies	<b>Home Dialysis Technical Challenges – our remarkable journey</b> - The University Health Network (UHN) has one of the world's largest home hemo dialysis programs. Dialysis technologists have played an essential role in the success and growth of this program. Our goal is to provide patients with the tools, training, and support necessary to achieve the best quality dialysis possible, while remaining in the comfort of their homes. This presentation outlines a number of technical issues for which solutions had to be developed and implemented. The solutions to these issues, an effective preventive maintenance and quality assurance program, as well as effective resolution of technical problems works to assure patients receive quality uninterrupted treatment at home. This makes a positive impact on the life of patients and their families.	<b>Sudarshan Meenakshi</b> - Sudarshan has been a Renal Engineering Technologist working with the Toronto General Hospital hemodialysis program for the last 18 years. Sudarshan completed a biomedical engineering program in India, then specialized with a post graduate diploma in Dialysis Technology from Georgian College in Barrie. Sudarshan teaches at Centennial College and at Georgian College in Barrie. He has taught a course on Dialysis and Water Treatment since 2008. <b>Vijayanathan Sivanandan</b> -Renal Engineering Technologist working in TGH Hemo dialysis for past 20 years. Completed Electrical engineering program at Lakehead University.
10:15-10:45			<b>Break</b>	
10:45 - 11:15	Session 3 Auditorium	Homecare Technologies	<b>Readiness of technologies and end-users – a look at the evidence in home health monitoring.</b> Home health monitoring is examined from the perspectives of: (1) technology readiness levels, (2) technology acceptance, and (3) levels of evidence on outcomes. I will highlight findings from a study that examined the acceptance of locator technologies for dementia-related wandering, and reviews on technologies for smart homes, fall-detection, and wandering. It is recommended that user acceptance be measured with a theoretical approach. According to the literature, the levels of evidence, and technology readiness levels of devices, are generally low. Approaches to improve both include consistent outcome data across studies, and involving end-users in the design process.	<b>Lili Liu</b> is an occupational therapist, and professor and chair of the Department of Occupational Therapy in the Faculty of Rehabilitation Medicine at the University of Alberta. She has a PhD in Rehabilitation Science from McGill University and is a network researcher of AGE-WELL NCE, Canada's technology and aging network.
11:15 - 12:00	Session 4 Auditorium	New Technologies	<b>Mariner's computer assisted surgery platform</b> allows surgeons to annotate areas of risk during laparoscopic surgery. Our LaparoGuard software reconstructs "no-fly" zones based on surgeon annotations and overlays this information onto laparoscopic video feeds – augmenting the visualization. With the company's procedural kit, trackers are attached to conventional laparoscopic tools, and their positions in real-time are tracked throughout the procedure, warning the surgical team when instruments approach designated risk zones to prevent inadvertent injury and improving surgical workflow.	<b>Mitch Wilson</b> serves Mariner Endosurgery as a member of the senior management team. Working closely with laparoscopic surgeons and healthcare administrators to guide product development, Mitch leads the team in providing devices aimed to improve surgeons' workflows during minimally invasive general, gynecological and urological surgery, while aiding administrators with clinical performance metrics captured from Mariner's computer-assisted surgical devices. A native of Oshawa, ON, Mitch obtained his MBA from McMaster University, and graduated from McMaster (B.Sc) and Trent (B.Ed) previously.
12:00-2:00			<b>Vendor Exhibits and Lunch in Gallery</b>	
2:00 - 3:00	Session 5 Auditorium	Process Improvement	<b>Process Improvement in Healthcare Sector</b> - Healthcare services are changing rapidly, and sometimes it's hard for the professionals in this field to adapt the new changes promptly. Real cases will be presented that the industry has partnered with the hospitals to adjust their internal processes and become more efficient. As a result, the performance has improved and maintained at a higher level. The presentation includes examples from Cardiac Surgery in New Brunswick and Diabetes Education in Ontario	<b>Dr. Morteza Zohrabi, MD</b> , Lean Six Sigma Master Black Belt, PMP, CPHQ - Medtronic. For the last 18 years, Morteza's work has saved millions of dollars by implementing Lean Six Sigma projects. These have achieved outstanding results in reducing backlogs and processing times, and increasing productivity. He is a Lean Six Sigma Master Black Belt, PMP and life coach.
3:00-3:30			<b>Break</b>	
3:30 - 4:15	Session 6 Auditorium	Health Canada Issues	<b>Health Canada's approach to Medical Devices Post-Market Surveillance: Hospital Bed Entrapment (case study).</b> The presentation will provide an overview of Health Canada's approach to medical devices post-market surveillance through signal detection, signal assessment and risk mitigation strategies. The talk will also highlight a case study on the risk of patient entrapment associated with hospital beds.	<b>Patrick Fandja</b> has been with Health Canada since 2003 where he held various positions in regulatory area and scientific evaluation of health products. Currently, he is managing the team responsible for the post-market surveillance of medical devices within the Marketed Health Product Directorate at Health Canada. Patrick has a Master in Pharmaceutical Sciences from Université de Montréal, and MBA from Université de Québec à Montréal and Paris Dauphine
4:15 - 4:30	Session 7 Auditorium	Day 1 Closing	Door prizes	Bill Gentles & Mario Ramirez

### Technical Track - Room 2A-2B

Time	Session #	Topic	Detail	Speakers & Bios
10:45 - 11:15	Session 8 2A-2B	Networking Case Studies	<b>Networking Case Studies</b> - Do you have situations where information does not get from a medical device to the location (e.g. service, central monitor, work station) where it is supposed to go over the network? Do you have challenges getting support from the vendor, and IT to solve these situations, because they say it is another group's responsibility? It is biomedical engineering who the clinical teams call when things do not work. It ends up being biomedical engineering who need to sort out where the problem is, and coordinate the different technical groups to work together to resolve it. We wanted to share a few examples/case studies with you on situations we have had. One dealing with sending information to a server external to the hospital, one dealing with , and one dealing with challenges we had with a vendor having a good connection to our Wi Fi.	<b>Doug McTaggart</b> - Medical Engineering CT Modality Leader at UHN/SHS for 27 years completed Engineering Technology program at Durham College. Completed Diagnostic Imaging Instrumentation Specialist Program at R.S.T.I. Completed Adobe Development training Interests: Computer technologies, Web design and database development <b>Tak Fan</b> - Medical Engineering Service Technologist at UHN/SHS for almost 3 years. Completed Biomedical Engineering Technology program at Centennial College (2014). Completed Life Sciences - Human Biology Degree from University of Toronto (2009). Passionate about: technology, computers, digital gaming, puzzles & riddles, and fantasy literature.
11:15 - 12:00	Session 9 2A-2B	Training - Troubleshooting	<b>Problem troubleshooting</b> requires a significant amount of expertise and knowledge in order to define possible causes of error. A deductive or inductive, or a combination of the two approaches, can be used in determining the problem. These approaches are also related with the complexity of the system. As an example, the troubleshooting of a problem is presented in regards to the operation of a cyclotron, which is utilized at UHN for the production of radioisotopes. These radio isotopes are used in the manufacturing of radiolabeled tracers. The operation of the cyclotron has to be consistent and reliable in order to respond to the patient's theranostics demands. A brief description of operational principles of the cyclotron will be introduced in order to understand the ion acceleration process. Some segments of the entire system will be included in order to have a general idea of the cyclotron operation in terms of troubleshooting a problem.	<b>Carlos Varon, P.Eng.</b> : Carlos has been working at UHN for the past 13 years. He is originally from Colombia, with a degree in Electronics Engineering, where he worked as an avionics engineer before moving to Canada. At UHN, he worked at the Ontario Cancer Institute as a Research Associate at the IGTX lab, where he had the chance to work with x-ray imaging using Dual Energy technique for the differentiation of soft tissue and bones from chest x-ray images. After that, he worked at the Princess Margaret Cancer Centre as a Physics Associate where he was involved with Linear Accelerators QC, radiation therapy patient plans QC, LINAC commissioning, and development of novel tools for QC and dosimetry. In the last 4 years he has been involved with operation, maintenance planning, and troubleshooting of cyclotron issues, and synthesis units used for the production of radio labeled tracers. He is also an ATEC (Accelerator Technology Education Course) faculty member.

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**Tuesday, February 5**

### Presentations - Auditorium

Time	Session #	Topic	Detail	Speakers & Bios
8:15 - 8:45			<b>Registration and Free Breakfast</b>	
8:45-10:00	Session 11 Auditorium	Post Secondary Roundtable	A Round Table Discussion with panelist from colleges and industry about the future of the biomedical field as it relates to current post secondary students and recent graduates.	Sandra Kudla - Durham College, James Durocher - St. Clair College, Charanjit Bamba - Centennial College, Ravi Anand - Siemens Canada, Claudia Duggan - Philips Canada
10:00-10:15	Session 12 Auditorium	CESO AGM	Clinical Engineering Society of Ontario - Annual General Meeting	Bill Gentles, President, CESO
10:15-10:45			<b>Break/Networking</b>	
10:45-11:00	Session 13 Auditorium	Networking	15 Minutes of Networking	CESO
11:00-11:45	Session 14 Auditorium	International Issues	Report from Tanzania	Hank Lee
			Report from Haiti	Aimee Riggs and Mark Heathcote, CHEO
			An update on the Tools For Techs Campaign to buy tools for Biomed in low resource countries	Bill Gentles is Chair of the International Outreach Committee of the Canadian Medical & Biological Engineering Society. In this presentation he will give an update on the fundraising campaign, and how the funds will be used.
11:45-1:45			<b>College Poster Presentations and Lunch in Gallery</b>	
1:45 - 3:00	Session 15 Auditorium	UofT Clinical Engineering Student Presentations	"Recent developments in healthcare technology" Each presentation will last 10 minutes, followed by 5 minutes for Q&A. These will be the 5 best papers from the pre-conference presentations that took place on January 28th.	
		1:45-2:00	A Double-Edged Sword: Advancements and Complications of Machine Learning in Healthcare	Ryan Chu
		2:00-2:15	Biofeedback in Gait Rehabilitation: New Development and Clinical Use	Alex Michellini
		2:15-2:30	Closed-loop Auditory Neuromodulation Improves Memory Consolidation, Immune Function with Sleep	Simeon M. Wong
		2:30-2:45	New Personalized Devices For Nutrient Tracking	Amalia Gil
2:45-3:00	Alternative Solutions to Disposable Pharmaceutical Packaging in a Hospital Setting	Claudia Lutfallah		
3:00-4:15	Session 16 Auditorium	CESO Technical Problem Solving Challenge	Artifacts on CT Images	Doug McTaggart, UHN
			Kangaroo Pump Problem	Faye Eduave, Trillium Health Partners
			NdYAG Laser Problem	Gad Acosta, UHN
4:15-4:30	Session 17 Auditorium	Day 2 Closing	Closing remarks, door prizes	Bill Gentles & Mario Ramirez

### Technical Track - Room 2A-2B

Time	Session #	Topic	Detail	Speakers & Bios
11:00-11:45	Session 18 2A-2B	HCTM Degree	Those attending this session are interested in tracing the historically significant periods for academia and Biomedical Engineering Technology. Today, Canada offers some of the best programs in Biomedical Engineering Technology and now, in its first year, Durham College is offering Canada's first Honours Undergraduate Degree in Health Care Technology Management (BHCTM). Health Care Technology Management is an emerging profession whose practitioners are ready to guide healthcare's transition and implementation into a technology intensive future. To meet this challenge, the BHCTM offers an interdisciplinary program of study in business management, the life sciences and medical technology, including a 420-hour placement between the 6th and 7th semester. Graduates with a 3-year advanced diploma in Biomedical Engineering Technology may be eligible for fast track into the BHCTM. Graduates of the BHCTM program are eligible to attend Marquette University's Master's Degree in Health Technologies Management in Milwaukee Wisconsin.	<b>Rick Tidman</b> , CBET(c), MBA Healthcare Administration. Rick has worked for more than 36 years in the Biomedical Engineering Technology field, including: in-house service, private sector service, private sector consultant and education. Currently he is Professor and Program Coordinator of the Biomedical Engineering Technology and Honours Bachelor of Health Care Technology Management programs at Durham College.
1:45 - 2:30	Session 19 2A-2B	Customer Service	<b>Customer Service</b> - Biomedical engineering staff and departments provide a variety of beneficial and vital support functions in hospitals and healthcare facilities. Many of these functions are technical in nature but not interactive. Learning and utilizing good customer service skills and techniques are essential to providing great support, raising the profile and proving the worth of your biomedical engineering department. Personal customer service skills, such as, effective verbal and non-verbal communication, accountability and etiquette will be discussed. As well, what your department does affects customer service on a different level. Examples of easy to implement and effective customer service strategies will also be provided.	<b>Sandra Kudla</b> is a professor who was integral in starting the Biomedical Engineering Technology Program at Durham College. She has a background in Biomedical from 1992 where she started at Oshawa General Hospital first as a dialysis tech, biomed tech and ultimately directed the program for 5 hospitals. She focused on Customer support and developed a regional revenue generating service as part of her portfolio, then transitioned full time to teaching future biomed. In 2016 she was awarded her Masters in Public Health from the University of Liverpool where she specialized in Health Systems Management. Sandra coordinates placement for Durham students and brings a refreshing perspective to biomed as an asset to the healthcare teams they join. <b>Peter Austin</b> - After obtaining a B. Eng. from Ryerson in Electrical Engineering and a Diploma in Biomed Eng Tech from Fanshawe College, Peter worked as a biomed at several GTA hospitals and biomed manager at OTMH. Later, Peter obtained an MBA from McMaster in Management of Innovation and New Technologies and a Professional Innovation Advisor designation from Basadur Applied Creativity. Combining his unique education and experience, Peter has worked for Smith & Nephew as a manager for visualization products, for OTMH on the Redevelopment team and later for CMEPP as General Manager. Recently, Peter started PA Solutions to provide consulting and problem solving facilitation services.

**Post Conference Social Event and Networking - Duke of Somerset**