CanSAVE Strategic Symposium Program

Accelerating Transformative Innovation In Cardiac Arrest Response

UBC Robson April 23 & 24, 2025

Wednesday, April 23, HSBC Hall

8:00-8:30 **Registration, Coffee/Tea, Pastries and Fruit**

8:30-9:00 **Welcome and Symposium Overview**
Jim Christenson, BC RESURECT
Brian Grunau, BC RESURECT

9:00-12:00 **CanSAVE Lead + Guest Presentations with Discussion on Critical Questions**

9:00-10:30 Community Volunteer Response
Steven Brooks CAN, Carolina Malta Hansen DEN, Susan Gardner UK

10:30-12:00 Neurological Recovery
Myp Sekhon CAN, Robert Neumar USA

12:00-1:00 **Lunch**

1:00-5:30 **CanSAVE Lead + Guest Presentations with Discussion on Critical Questions**

1:00-2:30 Survivorship
Katie Dainty CAN, Kirstie Haywood UK, Michael Bradfield UK

2:30-4:00 Biosensors
Brian Grunau CAN, Jacob Sunshine USA, Jacob Hutton CAN, Mahsa Khalili CAN

3:00 Coffee/Tea Snack Available

4:00-5:30 Optimization of 9-1-1 Telecommunication
Christian Vaillancourt CAN, Michael Sayre USA

7:00 **Sponsored Dinner at Rogue Kitchen- 601 W Cordova Street**

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Thursday, April 24

8:00-8:30 **Coffee/Tea, Pastries and Fruit**

8:30-10:00 **Breakout Sessions: Refining Program Priorities**

Survivorship: C671

Biosensors: C215

Neurological Recovery: C010

Community Volunteer Response: HSBC Hall

Optimizing 9-1-1 Telecommunications: C245

10:00-1:00 **Research Area Strategic Priorities (HSBC Hall)**

10:00-10:30 9-1-1 Telecommunication
10:30-11:00 Sensors
11:00-11:30 Coffee Break
11:30-12:00 Survivorship
12:00-12:30 Neurological Recovery
12:30 -1:00 Volunteer Community Response

1:00-1:30 **Symposium Close: Concluding Remarks**

Boxed Lunch To-Go

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Research Area	Critical Questions To Address
Biosensors	• How can we strategically pilot test our system (sensors and app) to assess clinical validation, identify ecosystem challenges, and refine the technology before scaling to a broader population? • Considering the trade-off between sensitivity and specificity, what strategies can be implemented to enhance true cardiac arrest detection while effectively reducing false alerts?
9-1-1 Telecommunication Response	• What is the potential impact of incorporating large language models in support of 9-1-1 telecommunicators' CPR instructions? • Could we further expand large language models to 9-1-1 public safety answering point and other applications? • How can we foster international collaboration?
Community Volunteer Response	• What key elements of community volunteer responder program design can optimize impact, feasibility, efficiency (minimizing costs), scalability, and sustainability? • What study design would best measure the impact of community volunteer responder programs in Canada, balancing methodological rigour, impact of study results, and feasibility?
Neurological Recovery	• What ICU / end of life data is beneficial to the prehospital setting: biosensors, 911 Paramedic response? What Physiological markers are helpful • Effectiveness of CPR on mitigating Hypoxic Ischemic Brain Injury. • What can the 3 Phases of post-arrest recovery tell us about HIBI care?
Survivorship	• What policy levers are feasible and important in Canada? • How do we bring together a National groundswell of diverse people with lived experiences (PWLE) to help drive our strategies in policy, research, etc.?

Symposium Hosts

Jim Christenson
M.D., Co-Director of BC RESURECT, helped develop CanSAVE. He serves as the Chairperson of the Resuscitation Advisory Committee of H&S and is a member of the Cardiac Arrest National Advisory Committee. Dr. Christenson has retired from his work in emergency departments but remains active in resuscitation research and the promotion of healthcare improvement in BC, particularly within remote Indigenous communities.

Brian Grunau
MD, Co-Director, BC Resuscitation Research Collaborative (BC RESURECT)
Assistant Professor, Department of Emergency Medicine, University of British Columbia
Emergency Physician, St. Paul's Hospital

Uda Walker
CanSAVE Symposium Coordinator
Research Manager, CanSAVE and BC RESURECT

Symposium Presenters by Research Area

Biosensors to Detect Sudden Cardiac Arrest

- **Brian Grunau - CanSAVE Lead**
  MD, Co-Director, BC Resuscitation Research Collaborative (RESURECT)
  Assistant Professor, Department of Emergency Medicine, University of British Columbia Emergency Physician, St. Paul's Hospital

- **Jacob Sunshine**
  MD, Physician and research scientist at the University of Washington and Google.

- **Mahsa Khalili**
  Dr. Khalili holds a PhD in Biomedical Engineering and is leading the development and validation of cardiac arrest detection algorithms as part of the CanSAVE initiative.

- **Jacob Hutton**
  PhD Candidate in the Experimental Medicine Program at UBC Faculty of Medicine. In addition to his graduate work, Jacob is a paramedic with BC Emergency Health Services. His current research efforts include leveraging cardiac arrest data for projects related to early detection and intervention for cardiac arrest using wearable and non-

wearable sensors. His broad research interests involve applying real-world and non-traditional sources of data to emergency response systems to increase the early recognition and prediction of acute health emergencies.

Optimizing 9-1-1 Telecommunications

- **Christian Vaillancourt - CanSAVE Lead**
  MD, Professor and Vice-Chair of Research and Scholarship with the Department of Emergency Medicine, uOttawa; Senior Scientist, Ottawa Hospital Research Institute; Chair in Emergency Cardiac Resuscitation, uOttawa; Associate Medical Director, Regional Paramedic Program for Eastern Ontario.

- **Michael Sayre**
  MD, Professor of Emergency Medicine, University of Washington
  EMS physician based in Seattle focused on improving outcomes from out-of-hospital cardiac arrest and fentanyl overdose. He brings frontline experience and research insights to advance prehospital care and public health interventions.

Community Volunteer Response

- **Steve Brooks CanSAVE Lead**
  MD, MHSc, FRCPC, is a Professor of Emergency Medicine at Queen's University and a researcher in out-of-hospital cardiac arrest. As Chief Medical Officer for Rapid Response Revival, he advances AED technology. His work drives innovation in resuscitation science, emergency medicine, and healthcare systems improvement.

- **Carolina Malta Hansen**
  MD., Ph.D., Cardiologist from Copenhagen University, Associate Professor at Copenhagen EMS. Research Fellow at Duke Clinical Research Institute, USA. My focus is translational and implementation research, particularly the interface between laypersons and professionals. Steering committee member of the HeartRunner, CARAMBA, RACE-CARS, and RESTOsRe-CARE trials.

- **Susan Gardner,** Project Coordinator for Save A Life For Scotland, collaborates with schools and communities to ensure everyone has the opportunity to be trained in CPR. Her goal is to equip all children and the public in Scotland with lifesaving CPR knowledge and the confidence to apply these skills in out-of-hospital cardiac arrest situations while coordinating the implementation of CARe Zones. Her previous experience includes working in the Community Resilience Department of the Scottish Ambulance Service as an Ambulance Technician and as a Nurse in Orthopaedics at the

Royal Alexandra Hospital in Paisley.

Optimizing Neurological Recovery

- **Mypinder Sekhon CanSAVE Lead**
  MD, PhD, Myp is an intensivist at Vancouver General Hospital and a leader in hypoxic-ischemic brain injury research.

- **Robert Neumar**
  MD, PhD, Professor of Emergency Medicine and Molecular and Integrative Physiology at the University of Michigan, and member of the Max Harry Weil Institute for Critical Care Research and Innovation. He currently serves as Co-Chair of the International Liaison Committee on Resuscitation (ILCOR).

Survivorship

- **Katie Dainty - CanSAVE Lead**
  PhD, An internationally recognized expert in survivor and family experience of sudden cardiac arrest and lay responder support with extensive experience in the development of patient-centered outcome measures and implementation science. Her core program of research focuses on using qualitative and co-design methods to unpack long-held assumptions about how to support patients and families at their most vulnerable moments

- **Kirstie Haywood**
  PhD, A Professor of Health Outcomes, Kirstie is a member of the Emergency, Prehospital, perioperative and Critical Care (EPPIC) research group at Warwick Medical School. She is currently leading the co-development and feasibility testing of a new online intervention for cardiac arrest survivors and their co-survivors (the CARESSf study). She led the development of the Core Outcome Set for Cardiac Arrest (COSCA), is leading an international group in co-development of a cardiac-arrest-specific, person-reported outcome measure.

- **Michael Bramfield**
  Michael is a paramedic with extensive experience in out-of-hospital resuscitation and is the Director of Clinical and Service Development at Resuscitation Council UK (RCUK). A key part of the RCUK mission is to improve the care for survivors of cardiac arrest, including developing quality standards and supporting research and policy development.

CanSAVE Symposium Participants

Sheldon Cheskes
MD, Professor with the Division of Emergency Medicine, Department of Family and Community Medicine at the University of Toronto, and a scientist at the Li Ka Shing Knowledge Institute at St. Michael's Hospital in Toronto, Ontario, Canada. He is the Medical Director for the Regions of Halton and Peel with the Sunnybrook Centre for Prehospital Medicine. He is one of the principal investigators for the Canadian Resuscitation Outcomes Consortium (CanROC) and is a recognized international authority in the area of CPR quality and out-of-hospital cardiac arrest resuscitation.

Calvin Kuo (CanSAVE Biosensor Team Lab Lead)
PhD, Associate Professor, School of Biomedical Engineering, University of British Columbia Research Focus: Human motion and wearable technologies

Babak Shadgan (CanSAVE Biosensor Team Lab Lead)
PhD, Dr. Shadgan is a Michael Smith Foundation for Health Research Scholar, an Assistant Professor in the UBC Department of Orthopaedics, a faculty member at the UBC School of Biomedical Engineering, and a principal investigator at the International Collaboration on Repair Discoveries (ICORD), where he is directing the Implantable Biosensing Laboratory.

Saud Lingawi (CanSAVE Biosensor Team)
PhD Candidate, UBC School of Biomedical Engineering Research Focus: wearable sensor technologies

Ava Askari (CanSAVE Biosensor Team)
PhD Candidate student passionate about Biophotonics, Biosensing Technologies, and Biomedical Signal Processing. Research is focused on designing and developing novel wearable devices in Sports Medicine and Health Care.

Armin Nourizadeh (CanSAVE Biosensor Team)
MD, Master's student at the University of British Columbia, involved in detecting cardiac arrest using optical technology.

Ryan Hoiland
PhD cerebrovascular physiology and human adaptation to hypoxia. As a postdoctoral fellow, Dr. Hoiland investigated the pathophysiology of hypoxic-ischemic brain injury and traumatic spinal cord injury, focusing on mitigating secondary hypoxic injury.

Allan de Caen CanSAVE

MD, Pediatric Intensive Care Consultant and Clinical Professor at the Stollery Children's Hospital/ University of Alberta in Edmonton. His research interests include Resuscitation Medicine and Critical Care Transport Medicine. He has held leadership positions within resuscitation science groups at ILCOR, HSFC and AHA.

Timothy Chan
PhD, Associate Vice-President and Vice-Provost, Strategic Initiatives at the University of Toronto. His primary research interests are in operations research, optimization, and applied machine learning, with applications in healthcare, medicine, sustainability, and sports.

Ben Leung
PhD, A Research Fellow in health systems optimization at the Duke Clinical Research Institute at Duke University. His work leverages machine learning and data analytics frameworks to identify and optimize response systems for cardiac arrest patients.

Paul Snobelen
Community Program Specialist with Peel Regional Paramedic Services.
Leads pre-hospital initiatives supporting the chain of survival. Developed a Region-wide Public Access Defibrillation program, created the Lay Responder Support Program, supported research on drone AED delivery, and implemented a Volunteer Community Responder Program.

Deb Hennig
President of Action First Aid and co-founder of SaveStation
Deb is dedicated to increasing 24/7 public access to life-saving AEDs. With extensive experience developing innovative curricula and best-in-class AED program management software, Deb empowers communities with the tools and knowledge to respond confidently in emergencies.

John M. Tallon
MD, MSc, FRCPC. John is a Clinical Professor at UBC in the Department of Emergency Medicine and an adjunct Professor at Dalhousie University, Halifax, NS, in the Departments of Emergency Medicine, Anesthesia, and Community Health and Epidemiology. Dr. Tallon graduated with honors from the University of Toronto Medical School. He holds a Master of Science in Epidemiology from Dalhousie University and an Emergency Medicine Royal College specialty certification from the University of Calgary. He was the first Chief Medical Officer with British Columbia Emergency Health Services and served as Vice President of Medical Programs with BCEHS. He is currently the Vice-Chair of the Emergency Medical Assistants Licensing Board in British Columbia.

Christopher Fordyce (BC RESURECT Executive Committee)
MD, Clinical assistant professor, Division of Cardiology, University of British Columbia
Director of the Cardiac Intensive Care Unit, Vancouver General Hospital

Ken Carrusca
Volunteer Board Member
Heart & Stroke Canada
Ken suffered a cardiac arrest in January 2018 (at age 50) while playing ice hockey in Burnaby, BC. Quick action by teammates and on-ice officials, including CPR and the use of an AED / defibrillator, saved me. I was transported by ambulance to the hospital and had a quadruple bypass procedure (4 x CABG) at Vancouver General Hospital. I'm indebted to all the folks who have played a part in getting me here today - including doctors, nurses, firefighters, BC Ambulance Paramedics, medical and lab staff, researchers and, of course, teammates, referees, family and friends.
And yes, Ken still plays hockey with the team "Can't Skate Backwards"

Jennifer Kirby
Registered Nurse
St. Paul's Hospital, Vancouver

Richard Reaney

Heart & Stroke Canada Partner Participants

Sanda Zambon
Manager, Stakeholder Engagement, Heart &Stroke Foundation.
Works with key partners, stakeholders and volunteers to advance the Heart & Stroke resuscitation objectives and mission.

Diana Bayles
Director, Resuscitation
Leads efforts to improve resuscitation outcomes across the country, including developing and implementing Guidelines and programs to improve patient outcomes for all those living in Canada.

Diego Marchese
Executive Vice President, Mission, Research, Social Enterprise Heart and Stroke, Canada
With over 25 years of dedicated service as a health executive in the not-for-profit sector, Diego has been a pivotal force in advancing Heart & Stroke's mission, overseeing critical areas, including research, health promotion, health systems, patient education, and advocacy. His leadership has been instrumental in developing and delivering numerous renowned health initiatives and strategies at both provincial and national levels that have enhanced public health and improved care and health outcomes across Canada.

Katie White
Director, Health Systems Heart & Stroke Canada
Katie leads the development of national strategies and action plans, including, most recently, a systems approach for cardiac arrest.

British Columbia Emergency Health Services Partner Participants

Sandra Jenneson
MD, Chief Medical Officer, BCEHS. Sandra has supported the organization in various roles. She began her career at BCEHS as a primary care paramedic from 2001 to 2009 and later became the unit chief at the Boston Bar station. Sandra holds a medical degree from the University of British Columbia (UBC) with a specialization in emergency medicine and a subspecialty in emergency health services. She is currently also a clinical assistant professor in the Department of Emergency Medicine at UBC and an emergency physician with Heavy Urban Search and Rescue (HUSAR) Task Force 1.

Jennie Helmer
Jennie Helmer brings over 30 years of experience in emergency health services in British Columbia. She now serves as the Chief Operations Officer for BCEHS. Jennie holds a Master's in Education and a Master's in Business Administration and is currently pursuing a PhD at the School of Population and Public Health at UBC. Outside of her family, leadership and academic pursuits, Jennie contributes to her family's organic potato, bringing the same dedication, adaptability and problem-solving required in farming to navigate modern healthcare's complex and ever-evolving landscape.

Stuart Woolley
Advanced Care Paramedic and current Acting Director of Clinical Practice for BCEHS with a 23yr career in EHS through the UK and Canada, leading a team of Paramedic Practice Leaders aiming to drive forward clinical best practice, effective QA/QI process through research, innovation and education.

David Hilder
Advanced Care Paramedic Practice Leader with 40 years of experience in pre-hospital care, including communications, paramedic specialization, and leadership. A dedicated professional, he is a recipient of Canada's Exemplary Services Medal with a 30-year bar and the King Charles III Coronation Medal.

Christopher Mistiades
Critical Care Paramedic with 36 years of ground and flight paramedicine service, a master's degree with distinction in Critical Care Paramedicine, and the EMS Exemplary Service award. Currently responsible for advancing clinical practice and evidence-based prehospital care, leading initiatives, and contributing to the development of policies and training programs.

Darrel Hunsbedt
Paramedic Practice Leader (PPL) with 23 years of service with BCEHS. He has worked as a Primary Care Paramedic, Advanced Care Paramedic, Paramedic Specialist, Critical Care Paramedic, Infant Transport Team Paramedic, and Paramedic Practice Educator.

Scott Haig

Industry Participants

Fred Chapman
PhD, Director of Research
Stryker Emergency Care
Fred leads a small group of engineers and scientists focused on advancing the science of emergency care. In his 30+ years in this role, he has extensively studied defibrillation, CPR, ventilation, and non-invasive monitoring.