2021 THE VADA PROGRAM
Visual and Automated Disease Analytics Program Data Science &
AI Summer School
Please mind that all times are in Pacific Day Light Time (PDT)
**Tuesday July 13, 2021**

8:30 am – 8:45 am (PDT)

Introduction and Motivation
Speakers: Dr. Elizabeth Borycki and Dr. Andre Kushniruk

8:45 am – 9:30 am (PDT)

Informing the Advancement of Digital Health with Research and Measurement
Speakers: Simon Hagens (MBA; Director, Performance Analytics, Canada Health Infoway), Bobby Gheorghiu (BBA MHSc CPHIMS-CA; Canada Health Infoway) & Barry Xu (BESc and MEng; Data Science Analyst, Canada Health Infoway)

Abstract: Canada Health Infoway has applied an evidence driven approach to drive forward the digital health agenda in Canada. From development of business cases, to evidence based targets and performance measuring to assessing outcomes, data drives decisions for Infoway and its partners. This work relies upon evidence from the literature, data and evaluations from projects on the ground, national surveys of clinicians and Canadians and ground-breaking research with academic partners. The talk will describe this work, and how to leverage the data and get involved.

Bio: Simon Hagens is Senior Director of Performance Analytics at Canada Health Infoway. Simon led the development and implementation of Benefits Evaluation at Infoway, which trends, informs and communicates the evolution of Digital Health in Canada. This work creates evidence from collaboration with the research community, overseeing a program of survey research, monitoring project performance and intelligence gathering. Simon is also currently Board Chair at Four Villages Community Health Centre in west Toronto. In prior roles, Simon has been a manager in a primary care and community health organization, and a market researcher in the pharmaceutical industry. Simon holds a B.Sc from the University of Guelph and an MBA from McGill University.
Building a Self-serve Analytics Website for Sharing the Results of a National Digital Health Survey

Abstract: Digital health, encompassing key areas such as virtual care and access to electronic health information, is growing at an unprecedented rate. The COVID-19 pandemic has changed the way that information is presented and shared. Innovative ways of distributing and analysing data while making it broadly available and accessible to multiple stakeholders in a dynamic and customizable way is key to knowledge translation and thought leadership.

This presentation will outline Canada Health Infoway’s approach to developing a self-service analytics website for publicly sharing the results of a national survey. The website has allowed the organization to easily and efficiently share data and analysis to its stakeholders while providing them with the ability to customize reporting and analysis to suit their independent needs. While initially developed for a singular purpose, the website was also successful in changing the way that data is used to inform decisions and provide insights in real time.

Bio: Bobby has 20 years of experience across the acute care, government and policy sectors of the healthcare system. In his current role with Canada Health Infoway he works with diverse internal and external stakeholders to collect, combine and analyse data and turn it into actionable insights in order to drive widespread adoption of digital health and demonstrate tangible benefits. Bobby holds an MHSc in Health Policy, Management, and Evaluation from the University of Toronto and a BBA from the Schulich School of Business, York University.

Bio: Barry is a Data Science Analyst at Canada Health Infoway where he is responsible for developing the Infoway’s self-service analytics website and conducting business intelligence and
advanced analysis on the corporate data. Barry received his master’s degree at the University of Toronto in data analytics and machine learning. He began his career at Infoway as a co-op student and was able to successfully deliver the first production analytics website while maintaining his academic excellence. His main areas of interest include utilizing power of artificial intelligence to provide advanced analytics and data-driven insights to make better business decisions and to derive out-of-box solutions to today’s digital health problems across Canada.

9:30 am – 10:00 am (PDT)

Digital Health in Canada
Speaker: Mark Casselman (Chief Executive Officer, Digital Health Canada)

Abstract: Digital Health Canada is a professional association that connects, inspires, and empowers the digital health professionals creating the future of health in Canada. Our members are a diverse community of accomplished, influential professionals working to make a difference in advancing healthcare through information, technology, and data management.

Digital Health Canada fosters network growth and connection; brings together ideas from multiple segments for incubation and advocacy; supports members through professional development at the individual and organizational level; and advocates for the Canadian digital health industry.

The presentation will describe industry trends, describe future needs, and highlight professional pathways for a career in digital health. Attendees will gain insight into skills, credentials, and experiences that will be valuable in preparing for a career in health in a digital world.

Bio: Mark Casselman is Chief Executive Officer of Digital Health Canada, the national association that connects, inspires, and empowers the digital health professionals creating the future of health in Canada. Digital Health Canada members are a diverse community of accomplished, influential digital health professionals who work passionately to make a difference in advancing healthcare through information, technology, and data management. Mark is a health executive and advisor with 20 years of experience working with executives, entrepreneurs, and clinical leaders across sectors within the Canadian health ecosystem. He has led large-scale
transformation initiatives and has been recognized as an innovator in the field of digital health. Mark has a proven track record of working with public sector, private sector, and government stakeholders and integrating both shared and different perspectives to achieve success.

10:00 am – 11:00 am (PDT)

Biomedical AI: Its Roots, Evolution, and Agenda for the Future
Speaker: Dr. Edward H. (Ted) Shortliffe (MD, PhD, MACP, FACMI, FIAHSI; Chair Emeritus and Adjunct Professor, Department of Biomedical Informatics, Columbia University; President and CEO Emeritus, American Medical Informatics Association (AMIA); Adjunct Professor, Arizona State University and Weill Cornell Medical College; Editor Emeritus, Journal of Biomedical Informatics (Elsevier))

Abstract: Five decades have passed in the evolution of Artificial Intelligence in Medicine (AIM), a field that has evolved substantially while tracking the corresponding changes in computer science, hardware technology, communications, and biomedicine. Emerging from medical schools and computer science departments in its early years, the AIM field is now more visible and influential than ever before, paralleling the enthusiasm and accomplishments of AI and data science more generally. This talk will briefly summarize some of AIM history, providing an update on the status of the field as we enter our second half-century. The inherent complexity of medicine and of clinical care necessitates that we address not only decision-making performance but also issues of usability, workflow, transparency, safety, and the pursuit of persuasive results from formal clinical trials. These requirements contribute to an ongoing investigative agenda for AIM research and development.

Bio: Ted Shortliffe is Chair Emeritus and Adjunct Professor of Biomedical Informatics at Columbia University’s Vagelos College of Physicians and Surgeons. He also holds adjunct appointments at Arizona State University and Weill Cornell Medical College. Previously he served as President/CEO of AMIA and was founding Dean of the University of Arizona College of Medicine in Phoenix. He has spearheaded the formation and evolution of graduate degree programs in biomedical informatics at Stanford, Columbia, and Arizona State University. Both a PhD computer scientist and a physician who has practiced internal medicine, Dr. Shortliffe is an elected member of the National Academy of Medicine, a fellow of the American College of Medical Informatics and of the Association for the Advancement of Artificial Intelligence, and a Master of the American College of Physicians. He received the Association of Computing Machinery’s Grace
11:00 am – 11:15 am (PDT)

Coffee Break

11:15 am – 12:15 pm (PDT)

Human-Centered AI: Supporting User Control & Visualization

Speaker: Dr. Ben Shneiderman (PhD; Emeritus Distinguished University Professor, Department of Computer Science, Founding Director, Human-Computer Interaction Laboratory and a Member of the UM Institute for Advanced Computer Studies (UMIACS), University of Maryland; Fellow of the AAAS, ACM, IEEE, NAI, and the Visualization Academy and a Member of the U.S. National Academy of Engineering).

Abstract: This talk proposes a new synthesis, in which Artificial Intelligence (AI) algorithms are combined with human-centered thinking to make Human-Centered AI (HCAI). This approach combines research on AI algorithms with user experience design methods to shape technologies that amplify, augment, empower, and enhance human performance. Researchers and developers for HCAI systems value meaningful human control, putting people first by serving human needs, values, and goals. Visual user interfaces and interactive information visualization will play a key role.

Bio: Dr. Ben Shneiderman (http://www.cs.umd.edu/~ben) is an Emeritus Distinguished University Professor in the Department of Computer Science, Founding Director (1983-2000) of the Human-Computer Interaction Laboratory (http://hcil.umd.edu), and a Member of the UM Institute for Advanced Computer Studies (UMIACS) at the University of Maryland. He is a Fellow of the AAAS, ACM, IEEE, NAI, and the Visualization Academy and a Member of the U.S. National Academy of Engineering, in recognition of his pioneering contributions to human-computer interaction and information visualization. His widely-used contributions include the clickable highlighted web-links, high-precision touchscreen keyboards for mobile devices, and tagging for photos. Shneiderman’s information visualization innovations include dynamic query sliders for Spotfire, development of treemaps for viewing hierarchical data, novel network visualizations for NodeXL, and event sequence analysis for electronic health records.

Ben is the lead author of Designing the User Interface: Strategies for Effective Human-Computer Interaction (6th ed., 2016). He co-authored Readings in Information Visualization: Using Vision to...

12:15 pm – 1:15 pm (PDT)
1:15 pm – 2:00 pm (PDT)

Examples of the Application of Data Science in the Management of Covid-19 Within the BC Ministry of Health
Speaker: Martin Wright (M.Sc.; Assistant Deputy Minister, Health Sector Information, Analysis and Reporting, BC Ministry of Health)

Abstract: The focus of this presentation is the application of data science within the Ministry of Health. Specifically: 1. Management of the Covid-19 pandemic; and 2. The impacts of the pandemic on, and implications for, patients and the BC health system.

Bio: Martin has been the Assistant Deputy Minister for Health Sector Information, Analysis and Reporting since November 19, 2018. Most of Martin’s two decades of experience in the BC Public Service have been spent leading analytics teams focused on influencing organizational strategy and operations, and, ultimately, client outcomes.

Martin joined the Ministry of Health from the Ministry of Children and Family Development where he leads a team recognized nationally for excellence in analytics in the social sector. He has also previously worked in similar roles in the Ministry of Health and the Premier’s Office.

He has a M.Sc. in Economics from the University of Wales, Cardiff, UK. In his spare time, Martin enjoys rowing, soccer and spending time with his family.

2:00 pm – 2:15 pm (PDT)
Adventures in Analytics: Building a Healthcare Improvement Team
Speaker: Michael Li (MHSc; Regional Director, Decision Support System Improvement and Quality Analytics, Vancouver Coastal Health)

Abstract: Over the past decade, the need for analytics across many industries has grown exponentially. The story of how analytics are applied to help streamline and improve patient care at VCH will be presented. Topics will include challenges along the way and how our approach from a people/culture, business process and strategy standpoint has evolved to meet the evolving needs of healthcare through the pandemic and beyond.

Bio: Michael Li is currently the Regional Director, Decision Support System Improvement and Quality Analytics at Vancouver Coastal Health. He and his team are responsible for providing analytics across the entire region to support planning, operations and ultimately better care.

During the pandemic, Michael has been part of the analytics leadership group across the province that has helped create effective tracking and monitoring of COVID-19.

Throughout his career, Michael has worked in every clinical area within healthcare from public health to surgery. His journey has led to work across BC, Alberta, and Ontario both in public sector and consulting roles. In addition to information technology, analytics, strategy and healthcare reform, he is particularly interested in building culture and teams. As a result, he volunteers with several universities and in 2013 won an Arbor Award from the University of Toronto for his volunteer contributions. He also currently sits as an Industry Board Member for the Business Analytics and Decision Making Certificate at the Beedie School of Business, Simon Fraser University and Member, Program Advisory Committee, Capilano University School of Business.

Michael holds a BSc in Health Information Science from the University of Victoria and an MHSc in Health Administration from the University of Toronto.
Canada’s Health TECH Industry – Opportunities & Collaboration
Speaker: Elaine S. Huesing (Executive Director, TECHNATION's Health division; Chief Executive Officer, International Medical Informatics Association (IMIA); Owner, Editor, and Publisher of Healthcare Information Management & Communications Canada Inc.)

Abstract: Elaine will provide an overview of Canada’s Health TECH industry. Information will be provided on how TECHNATION Health, Canada's Technology Association's health division, plays an important role in providing a platform for Health IT/TECH companies for advocacy and access through networking, partnerships and collaboration. Canada’s Health IT/TECH industry plays a significant role in influencing policies, regulations, thought leadership and establishing key positions for appropriate levels of tech-based spending in healthcare; and consistently voices the need for a more strategic approach for the acceleration and adoption of emerging digital health technologies.

Bio: Elaine is a 30+-year veteran in the healthcare industry, serving as an executive advocate and marketing expert to stakeholders around the world. She is the Executive Director for TECHNATION’s Health division, the Chief Executive Officer of the International Medical Informatics Association (IMIA) and is the Owner, Editor, and Publisher of Healthcare Information Management & Communications Canada Inc., one of Canada’s preeminent health IT journals.

Among other successes, Elaine has led the marketing efforts of private organizations, organized and managed events such as the annual COACH and bi-annual MEDINFO conferences, co-created the Canadian Health Informatics Technology Trade Association (CHITTA; now the health division of TECHNATION), the Alberta Network for Health Information eXchange (ANHIX) and the Canadian Health Informatics Awards (CHIA).

As the lead for TECHNATION’s Health division, Elaine helps members navigate the ICT challenges and opportunities of the health sector both nationally and globally. As IMIA’s CEO, Elaine leads the efforts of academic institutions spanning the globe to harmonize their educational programs for both present and future informaticians in the healthcare industry. At the 2019 CHIA Gala, Elaine was honoured with a Life Time Achievement Award by the TECHNATION Health Board and members.
Introduction and Recap
Speakers: Dr. Elizabeth Borycki and Dr. Andre Kushniruk

9:15 am – 10:15 am (PDT)

eXplainable AI - Towards Self-Assessment Methods for Machine Learning Systems
Speaker: Dr. Riccardo Bellazzi (PhD; Direttore del Dipartimento di Ingegneria Industriale e dell'Informazione, Università di Pavia (IT); Responsabile LISRC Lab, Istituti Clinici Scientifici Maugeri – Pavia (IT); Professor, Bioengineering and Biomedical Informatics, University of Pavia; Director, Department of Electrical, Computer and Biomedical Engineering, University of Pavia; Lead, Laboratory of biomedical informatics, hospital “Salvatore Maugeri”)

Abstract: The increasing impact of Machine learning and deep learning in biomedicine requires the definition of strategies to understand the behaviour of these systems, to explain their input/output relationships, and to properly bound their expected areas of intervention. In the lesson, after a brief introduction about the general topic of eXplainable AI, a focus will be given on methods that provide machine learning algorithms with the capability of performing a self-assessment of the reliability of their predictions, so that they can raise warnings if front of new/unseen cases that cannot be properly forecasted.

Bio: Riccardo Bellazzi is Full Professor of Bioengineering and Biomedical Informatics at the University of Pavia. He is the Director of the Department of Electrical, Computer and Biomedical Engineering of the University of Pavia. Moreover, he leads the Laboratory of biomedical informatics at the hospital “Salvatore Maugeri” in Pavia.

The scientific interests of Prof. Bellazzi are highly interdisciplinary and are aimed at applications of informatics to medicine and life sciences, comprising artificial intelligence, biomedical data mining, telemedicine, decision support, and clinical research informatics.

He is Fellow of the American College of Medical Informatics and Founding Fellow of the
International Academy of Health Sciences Informatics. He is involved in several international projects related to IT in medicine and bioinformatics.

He is a member of the editorial board of the journals "Methods of Information in Medicine", "International Journal of Medical Informatics", "Journal of Diabetes Science and Technology" and former Associate Editor of the "Journal of Biomedical Informatics".

**Coffee Break**

**AI for Earlier Medicine**

Speaker: Dr. Yu-Chuan Jack Li (MD, PhD; Distinguished Professor, Taipei Medical University; Dermatologist, Taipei Municipal Wanfang Hospital; President-elect, International Medical Informatics Association)

Abstract: “Earlier Medicine” refers to a temporally predictive and proactive approach to individualized health enabled by innovative AI modeling plus longitudinal/personal health big data. It calls on medical practice to not just react or manage present situations, but also medical events in the foreseeable future.

COVID-19 has changed our daily lives, as well as medical resource allocation. COVID-19 forces us to thoroughly review the relationship between medical and technological innovation. COVID-19 is here to stay. Therefore, we need to ask the question “How can humans work with AI to win the toughest battle in the world?”

In this session, Professor Yu-Chuan (Jack) Li will talk about the next big thing for AI in medicine.

Bio: Professor Li is a pioneer of artificial intelligence in medicine and translational biomedical informatics. He has devoted himself to evolving the next generation of AI in patient safety and prevention ("Earlier Medicine"). He has been deeply involved in international cooperation for biomedical informatics development among Asia, America, Europe, and Africa.

Prof. Li is currently serving as the elected President of the International Medical Informatics Association (IMIA). He has previously served as Vice President of IMIA and President of the Asia-
So, Is Privacy Dead? Not so Fast...

Speaker: Paulette Lacroix (Chair, International Medical Informatics Association (IMIA) ethics, privacy and security working group; Certified information privacy professional, International Association of Privacy Professionals; Adjunct Assistant Professor, University of Victoria, School of Health Information Science)

Abstract: Digital technologies have challenged the privacy of personal information as never before. We invite devices into our private living spaces, drive cars that are really computers on wheels, share very personal information across social media, and yet privacy prevails. As technology helps to shape privacy regulations, so does privacy rights help to shape technology. Throw into the mix the advancing AI, machine learning and robotics and we have a need for digital ethics. This amalgam is dynamic and life changing. So, is privacy dead? What hangs in the balance? In this talk we will look at how privacy and digital ethics will help shape public trust in advancing the technical revolution.

Bio: Paulette Lacroix has a diverse and extensive healthcare background as a strategic management consultant for 20+ years. Ms. Lacroix has assisted health authorities, government, universities, private enterprise and non-profits in program development, healthcare informatics, and privacy risk management.

Ms. Lacroix is Chair of the International Medical Informatics Association (IMIA) ethics, privacy and security working group. She is a certified information privacy professional with the International Association of Privacy Professionals (Canada and US), and an Adjunct Assistant Professor with the University of Victoria, School of Health Information Science. Her range of expertise includes information privacy and ethics, data governance, health informatics and cybersecurity. She was awarded the Emerald Literati Award for 2019 outstanding paper as one of
the most exceptional pieces of work submitted.

Lunch Break

1:00 pm – 2:00 pm (PDT)

Introduction to the Yale Center for Biomedical Data Science
Speaker: Dr. Xinxin (Katie) Zhu (MD, PhD, FAMIA, FIAHSI; Executive Director, Center for Biomedical Data Science, Yale University)

Abstract: Data have become an essential ingredient for investigators pursuing advanced biomedical science. As Yale University embraces the future of data-based research, the Yale Center for Biomedical Data Science (CBDS) has been established as one part clearinghouse for the newest data-related ideas; one part incubator for ways to educate students, trainees, and faculty alike on what data can offer; and one part an innovator of data techniques to advance both biomedical science and data science. This talk will give a brief introduction to the Yale Center for Biomedical Data Science and share some recent training activities taken place at the center, including the Yale-Boehringer Ingelheim Biomedical Data Science Fellowship Program.

Bio: Dr. Xinxin (Katie) Zhu currently serves as the Executive Director for the Center for Biomedical Data Science at Yale University. She received her M.S. in Computer Science from Rensselaer Polytechnic Institute and Ph.D. in Biomedical Informatics from Columbia University under the NLM fellowship after her medical training. Prior to joining Yale faculty, Dr. Zhu served as an advisor to the Center for Advanced Technology at Columbia University, physician scientist lead at the Center for Computational Health at IBM Research, CHIO at Kforce Government Solutions, associate medical director at Pfizer, clinical project manager at Philips, and healthcare subject matter expert at the U.S. Department of Veterans Affairs. She is the author of many scientific publications and 13 granted patents, as well as co-editor for an Elsevier book on Digital Health. She is a Fellow of the American Medical Informatics Association, and a Fellow of the International Academy of Health Sciences Informatics.

Coffee Break

2:00 pm – 2:15 pm (PDT)
Challenges and Opportunities for Artificial Intelligence in Low Resource Settings
Speaker: Dr. Yuri Quintana (PhD; Chief, Division of Clinical Informatics, Beth Israel Deaconess Medical Center; Assistant Professor of Medicine, Harvard Medical School)

Abstract: Dr. Quintana will speak on international approaches to collecting patient-reported data to support big-data analytics. Issues to be discussed include the growing older population, the standardization of clinical data collected via patient mobile apps and home-based health monitoring devices, mapping drugs identifiers across international drug databases, and appropriate methods to consent patients to participate in such studies that meet local and international regulations and take into account health literacy and cultural norms.

Bio: Yuri Quintana, Ph.D. is Chief of the Division of Clinical Informatics, Beth Israel Deaconess Medical Center, and Assistant Professor of Medicine at the Harvard Medical School. His research is focused on developing innovative technologies and systems that empower collaborative care between healthcare professionals, patients, and families. Quintana and colleagues have created InfoSAGE Health, a family-centered private online network for caring frail older adults at home, providing communication and medication management tools for the patient and their family caregivers. In a related project with the European Union’s UNICOM consortium, the team is working on methods to standardize the collection of patient-reported data via mobile apps for multi-national studies to support improving drug-drug interaction alerts and pharmacovigilance. He has also developed Alicanto™, an online collaboration platform for health professionals globally for virtual tumor boards, international standardization of care treatment guidelines, and support collaborations for international bioinformatics studies.
ARTIFICIAL INTELLIGENCE IN HEALTH: back to the future

Speaker: Dr. Fernando Martin-Sanchez (PhD, FACHI, FACMI, FIAHSI; Research Professor, Biomedical Informatics and Director, “Digital Health & Learning” Program, National School of Public Health, National Institute of Health ´Carlos III´ of Spain (ISCIII))

Abstract: Artificial intelligence (AI) represents one of the most promising areas for bringing the new personalized precision medicine to life. Numerous companies, conferences, and even the media have devoted great attention to developments in this area in recent years. Sometimes it might even seem that the application of AI in health is something recent. However, this is not so. AI was born in the late 1950s and the first applications in medicine date back to the late 1960s. It is also not true, despite recent attention, that deep learning-based systems are the only AI methods applicable to the resolution of health problems. In the presentation, the main achievements and evolution of AI in health will be reviewed, some trends and their impact on educational models for the coming years will be described, with particular focus on collaboration between artificial and human intelligence (hybrid systems), probably the path to the future.

Bio: Fernando Martin-Sanchez PhD, FACHI, FACMI, FIAHSI is a Research Professor in Biomedical Informatics and Director of the “Digital Health & Learning” Program of the National School of Public Health at the National Institute of Health ´Carlos III´ of Spain (ISCIII). From 2015 to 2017 he was Full Professor at the Division of Health Informatics at Weill Cornell Medicine and participated in the US Precision Medicine Initiative (AllofUs). Prior to this (2011-2015), he was the Chair of Health Informatics at the Melbourne Medical School and foundational Director of the Health and Biomedical Informatics Centre (HaBIC) at the University of Melbourne. He holds PhDs in Informatics and Medicine; an MSc in Knowledge Engineering and a BSc in Biochemistry and Molecular Biology. He is an elected Fellow of the American College of Medical Informatics (ACMI), the Australasian College of Health Informatics (ACHI) and the International Academy for Health Sciences Informatics (IAHSI).
Population Data BC – Researcher Resources and Data Access Request (DAR) Services
Speakers: Megan Ahuja (MPH; Lead of Strategic Projects, Population Data BC) & Ann Greenwood (MEd; Education & Training Lead, Population Data BC)

Abstract: Population Data BC (PopData) is a multi-university, data and education resource facilitating interdisciplinary research on the determinants of human health, well-being and development. Providing a range of services to researchers and data providers, PopData strives to ensure that researchers have timely access to the data and training they need to address research questions on population health. This presentation will provide an overview of PopData services that support researchers and data providers. Highlights will include details about our range of data and educational services as well as key steps involved in submitting a successful Data Access Request (DAR).

Bio: Megan Ahuja, MPH, is Lead of Strategic Projects at Population Data BC. She manages and leads the operationalization and implementation of strategic projects both within Population Data BC and with its external partners. She is a certified Project Manager with the Project Management Institute. She holds a Master’s of Public Health from the University of Saskatchewan, and a Bachelor’s of Psychology from the University of British Columbia.

Bio: Ann Greenwood, MEd, is the Education and Training Lead for Population Data BC. She holds a Master’s in Education and Leadership Studies from the University of Victoria. Ann has over 30 years of experience supporting academic students and working professionals to meet their educational goals. She currently coordinates a broad range of educational services and resources to support the capacity development needs of researchers, graduate students, and analysts in the field of population health.
Using Data Science to Harness an Advanced EHR and Improve Analytical Maturity in a Regional Health Authority

Speaker: Dr. Brandon Wagar (PhD; Director of Clinical Analytics and Clinical Information Support, Island Health Authority; Adjunct Assistant Professor, University of Victoria, School of Health Information Science)

Abstract: This session will provide an overview of the data science approaches and techniques used in a regional health authority to extract knowledge and insights from its advanced electronic health record. Clinical Analytics works with the Enterprise Data Warehouse to develop clinical data (incl. data mining and data quality assessment) on specific clinical practices, processes and outcomes; and employs a broad range of statistics and methodologies to identify and measure quality, patient safety, and service line efficiencies and improvements at the point of care. Examples that will be discussed include use of machine learning and multifactorial analysis to reduce unwarranted variation in care, use of NLP to extract clinical diagnostic and procedure codes from electronic charts, and use of cluster analysis to identify priority areas for targeted clinical improvement.

Bio: Brandon is the Director of Clinical Analytics and Clinical Information Support for Island Health, and an Adjunct Assistant Professor at the University of Victoria (UVic), School of Health Information Science. Previously, he was a Methodologist at the Canadian Institute for Health Information for eight years. He received his PhD in Behavioural Neuroscience from the University of Waterloo, and completed a post-doctoral fellowship in Cognition and Brain Sciences at the University of Victoria.

Leveraging Data and Analytics to Improve the Quality and Efficiency of Health Services

Speaker: Peter Papadakos (Director, Decision Support & Analytics, Health Information Services, and Chief Privacy Officer at Quinte Health Care)

Abstract: During this presentation we will be discussing leveraging data and analytics to improve the quality and efficiency of health services. And how mapping to an analytics maturity model to
track progress, demonstrate improvement and goal setting is advantageous.

The COVID19 pandemic impact will also be discussed as it has made it clear that data is critical to make prompt and correct decisions. And that analytics can drive efficiency in healthcare to solve future problems. Accessing, aggregating, transforming and reporting on data is mission-critical. For example, we now know that to determine the need for hospital supplies, such as masks, gowns and even ventilators, that analytics are necessary. Many hospitals have been severely capacity constrained, and embracing analytics to strategically identify capacity and predict ICU and hospitalization rates will keep us one step ahead. In planning for future surges, analytics is key to demand-supply matching. Even within a facility, providers can use these tools to identify resources, such as under-utilized beds that can be repurposed, or additional medical devices and diagnostic equipment.

Bio: Peter has more than two decades of experience with a passion for data and analytics. With a background in computer science and economics he started his career at Sunnybrook Health Sciences Centre managing system implementations.

He also has worked at the Cardiac Care Network of Ontario developing dashboards, scorecards, automated reporting and contributing to research papers. His next role was as senior business analyst and manager of Case Costing at the University Health Network.

Peter then moved to the Ministry of Health and Long-Term Care as senior manager of Data Development. He has been at Quinte Health Care for the last 9 years serving as director of Decision Support & Analytics, Health Information Management and Chief Privacy Officer.