

THE VISUAL AND AUTOMATED DISEASE ANALYTICS  
PROGRAM SUMMER SCHOOL PRESENTS:

# DATA SCIENCE AND AI IN PUBLIC HEALTH INFORMATICS

Presentations by leading academics,  
researchers and professionals in data  
science and health informatics



# DATA SCIENCE AND AI IN PUBLIC HEALTH INFORMATICS

## 2022 VADA PROGRAM SUMMER SCHOOL

### About the Visual and Automated Disease Analytics Graduate Training Program

The Visual and Automated Disease Analytics (VADA) graduate training program is a joint initiative between the University of Manitoba and University of Victoria.

The VADA Program aims to train the next generation of health informatics and computational science graduate students to translate complex health data into insights that can be used to improve the health of populations and support health professional decision making. Through the VADA Program, trainees will gain cutting-edge data visualization and analytic skills within a cooperative and experiential learning environment.

The Visual and Automated Disease Analytics Program is completed in one or two years depending on level of study. Graduate students who are admitted into the VADA Program complete the program while concurrently working towards their master's or doctoral degree. Master's students complete the program in one year while doctoral students complete it in two years. The program is made up of three components:

- The Foundations of Disease Analytics Course;
- The VADA Program Summer School;
- Internship

 [vada.program@chimb.ca](mailto:vada.program@chimb.ca)

 [vada.cs.umanitoba.ca](http://vada.cs.umanitoba.ca)

 School of Health Information Science, UVic

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 [TheVADAProgram](https://twitter.com/TheVADAProgram)

 [nserc-create-visual-and-automated-disease-analytics-program](https://www.linkedin.com/company/nserc-create-visual-and-automated-disease-analytics-program)

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Cette recherche a été financée par le Conseil de recherches en sciences naturelles et en génie du Canada (CRSNG).

## VADA PROGRAM LEADERSHIP TEAM

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**DR. ELIZABETH BORYCKI,**  
**UNIVERSITY OF VICTORIA**

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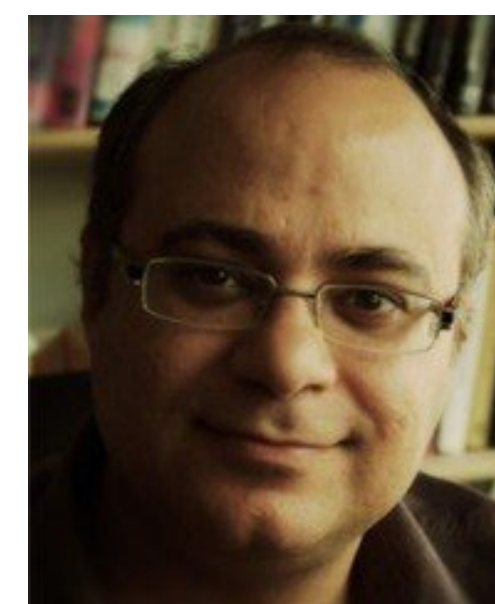
Dr. Elizabeth Borycki is the director of both the Social Dimensions of Health and the Health and Society programs at University of Victoria. She studies the effects of user interface design upon health professional and patient information seeking, decision making and technology safety.



**DR. POURANG IRANI,**  
**UNIVERSITY OF MANITOBA**

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Pourang Irani is the principal investigator for the VADA Program CREATE grant and is a Professor in Computer Science at the University of Manitoba and Tier 2 Canada Research Chair in Ubiquitous Analytics. His work lies at the intersection of Human-Computer Interaction and Data Visualization, with focus on developing and studying tools for exploring large information spaces on mobile and wearable computers.



**DR. ANDRE KUSHNIRUK,**  
**UNIVERSITY OF VICTORIA**

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Dr. Kushniruk's work is known internationally and he has published widely in the area of human factors in health informatics. He focuses on developing new methods for the evaluation of information technology and studying human-computer interaction in health care and he has been a key researcher on a number of national and international collaborative projects. His work includes the development of novel methods for conducting video-based usability analysis of computer users and the design of optimized user interfaces for healthcare. He is currently extending this research to remote study of e-health applications and advanced information technologies, visualizations, decision support systems and electronic health record systems.



**DR. LISA LIX,**  
**UNIVERSITY OF MANITOBA**

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Dr. Lisa Lix is a Professor in the Department of Community Health Sciences at the University of Manitoba and a Tier 1 Canada Research Chair in Methods for Electronic Health Data Quality. Her research expertise lies in statistical methods for complex healthcare data and patient-reported outcome measures. She collaborates extensively with the Public Health Agency of Canada in chronic disease surveillance methods.



## VADA SUMMER SCHOOL COORDINATORS

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**LOIS HOLIZKI,**  
**UNIVERSITY OF VICTORIA**

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Since completing her BA (Economics, minor Mathematics) in 1984 Lois has worked in research. Initially starting as a research assistant she worked her way into data analysis on various projects across North America and continued on that course for many years. Slowly administrative duties were added until Lois realized research logistics that focused on dissemination were as important to her as data analysis and more important to the research process. This began her interest in knowledge mobilization. It has been one of her key activities over the last 20+ years. From creating print documents to planning events and website design, her goal has been to stay current and provide information to the largest possible audience.

**SASHA ZINOVICH,**  
**UNIVERSITY OF VICTORIA**

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Sasha Zinovich holds a BA in Psychology from Bishop's University and is currently a Master of Arts candidate in Sociology at the University of Victoria. Her research focuses on dementia, medical assistance in dying (MAID), inequities in access to healthcare, and end-of-life healthcare decisions. Sasha works on various projects with the *Global Laboratory for Digital Health Innovation* in the Department of Health Information Science and the Department of Sociology at the University of Victoria.

# MONDAY, JUNE 20, 2022

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8:15-8:45 AM (PDT)  
10:15-10:45 AM (CDT)

## WELCOME

SPEAKERS: ELIZABETH BORYCKI, ANDRE KUSHNIRUK, POURANG IRANI & LISA LIX

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8:45-9:30 AM (PDT)  
10:45-11:30 AM (CDT)

## DATA STEWARDSHIP FOR A WORLD-CLASS HEALTH DATA SYSTEM

**KEYNOTE SPEAKER: ERIC SUTHERLAND, EXECUTIVE DIRECTOR, PAN-CANADIAN HEALTH DATA STRATEGY, PUBLIC HEALTH AGENCY OF CANADA**

BIO: Eric Sutherland has been called a data guy with personality and with a passion for driving meaningful use of data for the public good while respecting individuals' privacy. He is a recovering banker, following 20 years at a major Canadian bank with senior roles in IT, strategy, and data leadership. He is currently driving development of a Pan-Canadian strategy for health data to realize better outcomes for individuals, communities, and jurisdictions.

ABSTRACT: Data and information are being created at an exponential pace making our ability to create, collect, share, use and regulate data and information more important than ever. Data and information are the new currency and our ability to uncover these hidden assets is critical to successful evidence-based policy and person-centered health care. An Expert Advisory Group on a Pan-Canadian Health Data Strategy has published three reports (June and November 2021, May 2022) that articulate the systemic barriers to health data sharing and use and the need to focus on strengthening Canada's health data foundation – governance, trust, policy, interoperability, and literacy. Their final report articulates 10 recommendations to advance a Learning Health System, supported by a culture of data stewardship that puts people and communities at the centre of care.



9:30-10:00 AM (PDT)  
11:30 AM-12:00 PM (CDT)

## DIGITAL HEALTH IN CANADA

**SPEAKERS: MARK CASSELMAN, CHIEF EXECUTIVE OFFICER, DIGITAL HEALTH CANADA & NICKIESHA LINTON, MANAGER, EDUCATION, DIGITAL HEALTH CANADA**

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.



BIO: Nickiesha Linton, an avid believer in lifelong learning, currently serves as Manager, Education at Digital Health Canada. She has over 10 years' experience in education, with a focus on adult learning. In her current role as Manager, Education, she leads the application of the Core Health Informatics Competencies across the association's curricula and professional development experiences for individuals with an interest in digital health. Nickiesha welcomes the opportunity to share with emerging professionals the wealth of resources that Digital Health Canada offers as they chart their career journey.

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.



**MONDAY, JUNE 20, 2022**

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**10:00-11:00 AM (PDT)**  
**12:00-1:00 PM (CDT)**

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**MODELLING AND DATA ANALYSIS IN THE CONTEXT OF COVID**

**SPEAKER: ADEL GUITOUNI, ASSOCIATE PROFESSOR, GUSTAVSON SCHOOL OF BUSINESS, UNIVERSITY OF VICTORIA & ASSOCIATE CO-CHAIR OF THE VICTORIA FORUM**

BIO: Dr. Adel Guitouni is an award-winning associate professor of management sciences, operations research and decision support systems at the Gustavson School of Business. His PhD and master-level students benefit from his multi-disciplinary approach to teaching and professional activities, which includes his work with the Canadian government where he directed large scientific teams involved with major events and strategic initiatives such as the Vancouver 2010 Olympics and G8/G20 summits, and a variety of projects with the Canadian Forces.

Since 2011, on behalf of the business school, Adel has actively engaged in several educational activities that support the democratic transition and socio-economic development in the MENA region (i.e., Tunisia and Libya) from providing coaching sessions to senior government officials to obtaining grant funding to develop the country's leadership capacity. In 2014 in partnership with Tunisian higher education institutions, he established a not-for-profit non-governmental organization dedicated to fostering entrepreneurship development and innovation.

Adel has published numerous refereed papers and book chapters, and is the recipient of several multi-million dollar research grants. On the research side, he has made several contributions to multiple criteria decision aid (MCDA), supply chain management, information systems, resource management, and cloud computing. His research interests include the automation of planning and scheduling, net-enabled dynamic resource management and supply chain management, classification and machine learning, multiple criteria decision analysis, multi-objective optimization, collaborative decision making, and decision support systems.

Through his research Adel's goal is to help improve the decision-making process at the individual and corporate level. Through his entrepreneurship and leadership project work, he hopes to empower youth and leaders by giving them the tools to change their world.

Before joining the Gustavson School of Business full-time in 2011, Adel served as one of its adjunct professors. He has also held positions with the Canadian government and taught at Laval University, University of Sherbrook and Concordia. He has supervised numerous graduate students and six post-doctoral fellows, and he maintains membership in international policy groups and think tanks.

ABSTRACT: Dr. Adel Guitouni will present two efforts: performance comparison of national health systems and using infection disease modelling to forecast healthcare resource allocation. He will speak to two papers: "Qualitative bi-criteria approach for comparing national healthcare systems response to the coronavirus disease (COVID-19) outbreak using longitudinal data-envelopment analysis" and "Predicting hospitalizations and intensive care unit hospitalizations from emergent infectious diseases modelling: The case of COVID-19".



11:15AM-12:15 PM (PDT)  
1:15-2:15 PM (CDT)

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## **DATA VISUALIZATION NEEDS TO SUPPORT EMERGENCY RESPONSE TO COVID IN A SAFETY NET HOSPITAL**

**PANELISTS: DAVE KAUFMAN, PHD, FACMI, CLINICAL ASSOCIATE PROFESSOR, MEDICAL INFORMATICS DOWNSTATE HEALTH SCIENCES UNIVERSITY, YALINI SENATHIRAJAH, ASSOCIATE PROFESSOR, DEPARTMENT OF BIOMEDICAL INFORMATICS, UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE, DEPARTMENT OF BIOMEDICAL INFORMATICS & KENRICK CATO, PHD, FAAN, NURSE RESEARCHER, NEW YORK-PRESBYTERIAN HOSPITAL & ASSISTANT PROFESSOR COLUMBIA UNIVERSITY SCHOOL OF NURSING**

BIO: David Kaufman, PhD, FACMI, joined the School of Health Professions as a Clinical Associate Professor in 2020. Dr. Kaufman earned a bachelor's degree in Psychology from McGill University, Masters and a PhD in Educational Psychology from McGill University.

Prior to joining Downstate, Dr. Kaufman was an Associate Professor at Arizona State University, Department of Biomedical Informatics, an Associate Research Scientist at Columbia University Department of Biomedical Informatics and a Lecturer at UC Berkeley in the Graduate School of Education. He is also a Visiting Professor at the University of Victoria, British Columbia, Canada.

Dr. Kaufman has worked in the area of human-computer interaction and human factors in healthcare for the last 20 years. He has extensive experience conducting cognitive research in relation to informatics initiatives and evaluating a wide range of health information technologies developed for clinicians, biomedical scientists, patients and health consumers. These include projects pertaining to the evaluation of electronic health records, computer-provider order entry systems, language learning systems for medical professionals and a large-scale telemedicine system for patients with diabetes. He has also worked extensively with patient and consumer populations of varying levels of literacy. In recent years, he has worked on projects related to EHR-mediated workflow in collaboration with Arizona State University and the Mayo Clinic. Most recently, he became involved in a collaborative project studying emergency management response in relation to the COVID-19 pandemic.

Dr. Kaufman research interest includes EHR-mediated clinical workflow, human-computer interaction, eHealth literacy, consumer health informatics and medical decision making.

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BIO: Yalini Senathirajah, PhD is an Associate Professor, Department of Biomedical Informatics, University of Pittsburgh School of Medicine, Department of Biomedical Informatics

My main area of research interest is improving the design and usability of electronic health records and health IT systems in general, using a novel paradigm together with modern web technical approaches. This is based on giving nonprogrammer clinicians more control via a drag/drop platform approach which allows them to create their own software and tools. It has promise to increase the software's efficiency and cognitive support, fit to clinician ways of thinking, work contexts, public health emergencies, ease of use, and evolvability to meet future needs and different specialty and work contexts.

My other major areas of interest are using informatics for patient/consumer engagement, particularly in minority communities and the underserved, global health informatics, and analytics to improve healthcare.

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BIO: Kenrick Cato, PhD, RN, CPHIMS, is a Nurse Researcher/Assistant Professor for New York-Presbyterian Hospital and Columbia University School of Nursing, respectively. Dr. Cato worked as a staff nurse at NewYork-Presbyterian Hospital providing care for surgical oncology patients and as a clinical analyst, working on projects to improve patient safety through the use of the hospital's electronic systems. Dr. Cato's program of research focuses on the use of data science to investigate ways of improving patient safety, quality of care, and individual health. Towards these goals, Dr. Cato's previous work has included National Institute of Health funded research in health communication via mobile health platforms, shared decision making in primary care settings and data mining of electronic patient records. His current projects include automated data mining of electronic patient records to discover characters about a patient that are often missed by clinicians. He has published his findings in numerous peer-reviewed journals and at national and international conferences.



1:15-2:00 PM (PDT)  
3:15-4:00 PM (CDT)

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## PROJECT MANAGEMENT DURING THE COVID19 PANDEMIC

**PANELISTS: RAV GOODISON, MSc, PHD STUDENT, SCHOOL OF HEALTH INFORMATION SCIENCE, UNIVERSITY OF VICTORIA & PROGRAM MANAGER CONSULTANT, JOE WALSH, JOE WALSH, PHD CANDIDATE, SCHOOL OF HEALTH INFORMATION SCIENCE, UNIVERSITY OF VICTORIA & MANAGER OF ICT OPERATIONS & SECURITY FOR A GROUP OF COMMUNITY HOSPITALS, JEROME CAÑETE, MD, A/MANAGER, DESIGN AND DELIVERY, ONLINE OPERATIONS AT HEALTHLINKBC & SUSI WILKINSON, MSc., LEAD, CLINICAL INFORMATICS, PROFESSIONAL PRACTICE OFFICE, INTERIOR HEALTH**

Topic: Managing SWAT in Health Informatics

BIO: Rav Goodison, Health Information Science (HINF) MSc alumni and current PhD in Health Informatics (HINF) student shares her experience for improving health IT project delivery. With COVID 19 restrictions in place, family visits at hospital sites became limited and there was an increased need to implement digital solutions that supported the ability to provide care at a distance. Rav Goodison who is a Senior Project Manager (working with a lower mainland health authority in a Health Informatics department) saw an opportunity to lend a helping hand. Rav explains, "During the pandemic it was important to look beyond regular work roles and roll up our sleeves to help where we could, it was imperative that we support our health care providers and patients in any way possible. Providing access to digital solutions as fast as possible was critical in providing health care at a distance, taking care of health care providers, and connecting patients with their families. One of the solutions required iPads to be installed in the ICU and COVID units. I did the installation at a specific site that particularly impacted me. I observed the necessity of human connections and how using digital solutions eased the distress of not being able to comfort sick family members in person. This single experience has strengthened my passion for health informatics and validated my chosen career path in delivering high quality digital solutions that support our front-line workers. It confirmed my absolute dedication and commitment to the field of health informatics."



Rav managed the SWAT team that was set up to help manage COVID related health informatics work. One of the solutions was to deploy iPads into acute care sites ensuring that they could be accessed by health care providers and patients to communicate with their loved ones. "It was important for health care providers to reduce their risk of cumulative exposure to COVID 19 and allow patients in critical conditions to connect with their families and friends". Rav continues, "Delivering digital solutions in a time of need for our most vulnerable and sick patients is a simple human act. Everyone has a duty to support our front-line workers and patients."

Rav highlights the importance of health informatics and knowing how to apply it. The rise of health information science is rapidly changing, enabling, and supporting health care services. Our alumni help provide digital solutions that enable and support efficient clinical workflows/processes, improve clinical decision-making and design digital solutions that empower health care providers and patients. From her studies in Health Information Science, Rav has put what she has learned into practice. Rav has used many of these theories and methods to improve health IT project delivery and provide end users with effective solutions. Additionally, Rav implements new digital solutions using best practice project and system development methodologies. She is currently deploying virtual technologies to improve the virtual care experience that so many patients are continuing to rely on. These experiences have furthered her conviction to follow through with the important research of improving the way health IT projects are being delivered in health organizations.

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Topic: Field Hospitals & Vaccination Clinics in the Early Stages of the COVID-19 Pandemic

BIO: Joe Walsh is the Manager of ICT Operations & Security for a large group of community hospitals in the greater metropolitan Toronto area. Throughout the COVID-19 pandemic, their team has improvised using available technologies to best fit with new clinical workflows. Over the past 2 years, they have been called on to transform spaces in their hospitals such as meeting rooms, retail food services locations and undeveloped areas of the buildings to serve as vaccination clinics, testing centers and field hospitals to accommodate the needs of the rapidly growing communities they serve.



As a Health Informatics PhD candidate at the University of Victoria, Joe has continued his research in Disaster Resilience as it relates to technology's role in the clinical workflow.

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Topic: Applying Design Thinking to Problem-Solve and Project Manage Emerging Call-Taking Issues

BIO: Jerome Cañete is currently the A/Manager, Design and Delivery, Online Operations at HealthLinkBC. He and his team are responsible for the HealthLinkBC website including content development and providing information support to 8-1-1. This work provides reliable non-emergency health information and advice in British Columbia. Information and advice is available by telephone, the HealthLinkBC website, a mobile app and a collection of print resources.



During the COVID-19 pandemic, Jerome was responsible for leading and coordinating the development of COVID-19 decision algorithms and tools for HealthLinkBC and worked with BC provincial stakeholders including BCCDC and ImmunizeBC to identify and develop communication methods, content requirements and respond to public need.

Jerome is an MD and currently not practising, is completing his MSc in Health Informatics at UVic, and is pursuing his interests in Digital Health and Informatics.

# MONDAY, JUNE 20, 2022

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1:15-2:00 PM (PDT)  
3:15-4:00 PM (CDT)

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## PROJECT MANAGEMENT DURING THE COVID19 PANDEMIC

**PANELISTS:** **RAV GOODISON**, MSc, PhD STUDENT, SCHOOL OF HEALTH INFORMATION SCIENCE, UNIVERSITY OF VICTORIA & PROGRAM MANAGER CONSULTANT, **JOE WALSH**, **JOE WALSH**, PHD CANDIDATE, SCHOOL OF HEALTH INFORMATION SCIENCE, UNIVERSITY OF VICTORIA, **JEROME CAÑETE**, MD, A/MANAGER, DESIGN AND DELIVERY, ONLINE OPERATIONS AT HEALTHLINKBC & **SUSI WILKINSON**, MSc., LEAD, CLINICAL INFORMATICS, PROFESSIONAL PRACTICE OFFICE, INTERIOR HEALTH

BIO: Susi works in the role of Clinical Informatics Lead with Interior Health's Professional Practice Office. She has Japanese and Ukrainian ancestry and lives as a settler on the unceded and ancestral territory of the Syilx Nation, in the South Okanagan region of the BC Interior. Susi has completed a Bachelors of Science (Biochemistry-Nutrition) and has worked as a registered dietitian, health services manager, and practice leader for primary care, chronic disease management, and seniors care. She also completed a Masters of Science (Health Information Science) and now focuses on digital health change management and promotion of usability engineering methods in the procurement, design, and evaluation of digital health solutions. Susi finds balance and joy by making time to sail, paddle, hike, cook, and share meals with her husband, family and friends.



2:15-3:15 PM (PDT)  
4:15-5:15 PM (CDT)

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## CAREERS IN DATA SCIENCE!

**PANELISTS:** **MICHAEL LI**, REGIONAL DIRECTOR, DECISION SUPPORT SYSTEM IMPROVEMENT AND QUALITY ANALYTICS, VANCOUVER COASTAL HEALTH, **AMIRAV DAVY**, MSc CANDIDATE, SCHOOL OF HEALTH INFORMATION SCIENCE, UNIVERSITY OF VICTORIA & DIGITAL HEALTH PROGRAM MANAGER, CIUSSS OF WEST-CENTRAL MONTREAL & **YANYAN LI**, PHD STUDENT & RESEARCHER, SCHOOL OF HEALTH INFORMATION SCIENCE, UNIVERSITY OF VICTORIA & PORTFOLIO MANAGER, HEALTH INFORMATICS AND INFORMATION TECHNOLOGY DEPARTMENT, FRASER HEALTH

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 strategy, 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 is also the chair of the Vancouver Analytics Board, a local industry organization dedicated to "making Vancouver a premier destination where analytics professionals thrive." Michael holds a BSc in Health Information Science from the University of Victoria and an MHS in Health Administration from the University of Toronto.



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Topic: Strategizing Data Engineering and Data Science Roles for Advancing Patient Care

BIO: Amirav Davy is an MSc candidate in the School of Health Information Science at the University of Victoria and a 2021 graduate of the VADA program. His research focuses on how effectively health care organizations adopted COVID-19 predictive models for strategic care and hospital resource planning. His passion for health informatics extends to deployment of predictive analytics, dashboard usability and assessing the value of emerging digital health tools. Amirav is currently the Digital Health Program Manager at the CIUSSS of West-Central Montreal, where he is responsible for the financial monitoring and project integration of informatics workstreams including analytics and the electronic health record. Amirav earned a master of public administration in health policy and management from New York University and a Bachelor of Arts in Communications from the University of Washington. He currently lives with his family in Montreal, Quebec.



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BIO: Yanyan Li is a PhD student and researcher in the School of Health Information Science at the University of Victoria, Canada. She also works as a portfolio manager in the Health Informatics and Information Technology department in Fraser Health (FH). Yanyan has over a decade of experience with health information technologies and over eight years of experience in leading the development of an eSafety program, supporting an enterprise electronic health record system, with the goal of improving the safety and quality of health information technologies.

Computer Science and Software Engineering Emphasis - BSc (2004)  
Health Information Science – BSc (2007)  
Health Informatics – MSc (2012)  
Health Informatics – PhD (2020 - Present)





9:00-9:15 AM (PDT)  
11:00-11:15 AM (CDT)

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## WELCOME

SPEAKERS: ELIZABETH BORYCKI, ANDRE KUSHNIRUK & LISA LIX

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9:15-10:15 AM (PDT)  
11:15 AM-12:15 PM (CDT)

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## MEASURING THE STATE OF DIGITAL HEALTH AND WHAT CANADIANS WANT: USING DATA ANALYTICS TO DRIVE HEALTH SYSTEM DECISIONS

**SPEAKER: SIMON HAGENS**, MBA, DIRECTOR, PERFORMANCE ANALYTICS, CANADA HEALTH INFOWAY & **BOBBY GHEORGHIU**, BBA, MHSC, CPHIMS, DIRECTOR, ANALYTICS, CANADA HEALTH INFOWAY

BIO: Simon Hagens is Senior Director, Performance Analytics at Canada Health Infoway. His team trends, informs and communicates the evolution of Digital Health in Canada. This work involves collaboration with the research community, overseeing a program of survey research, monitoring project performance and intelligence gathering. Simon just completed a term as Board Chair at Four Villages Community Health Centre in west Toronto, leading the organization through a merger with two other community health service providers. 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.



BIO: Bobby's career includes 20 years of analytical, consulting and management experience across the acute care, government, and policy sectors of the health care system. His health care journey has had him work alongside clinician leaders, health care executives, Ministers and consultants to shape policy and deliver value to stakeholders. In his current role at Canada Health Infoway, Bobby combines his knowledge of health data with a deep understanding of the Canadian digital health landscape to innovate new ways of developing, measuring, and reporting performance and outcome indicators. By growing organizational data analytics capabilities, Bobby provides insights that stimulate adoption and demonstrate tangible benefits of investments in digital health.

Bobby has a Bachelor in Business Administration from the Schulich School of Business, York University and a Master's Degree in Health Policy, Management, and Evaluation from the University of Toronto.



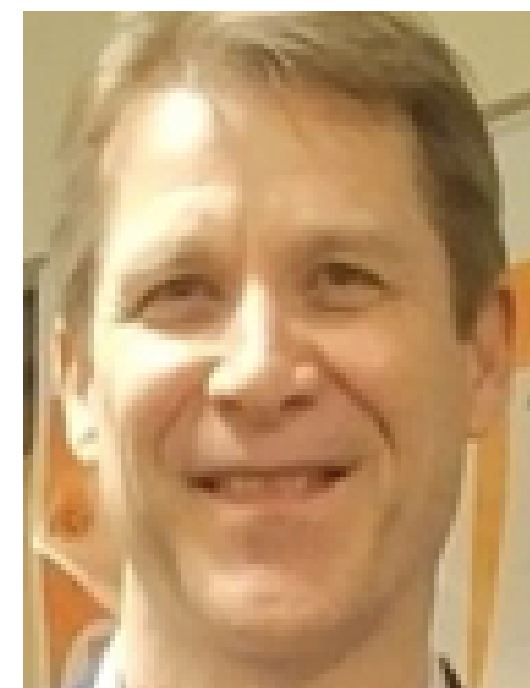
10:30-11:15 AM (PDT)  
12:30-1:15 PM (CDT)

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## THE IMPORTANCE OF DATA, ANALYSIS AND REPORTING IN MANAGING THE COVID-19 RESPONSE - THE OTTAWA PUBLIC HEALTH EXPERIENCE

**SPEAKERS: CAMERON KEYES**, DIRECTOR OF KNOWLEDGE EXCHANGE, PLANNING AND QUALITY, OTTAWA PUBLIC HEALTH & **CATHERINE MILLAR**, HEALTH INFORMATION ANALYST, EPIDEMIOLOGY TEAM, OTTAWA PUBLIC HEALTH

BIO: Cameron Keyes is the Director of the Knowledge Exchange, Planning and Quality at Ottawa Public Health. Previous to this position, he was the Director of the Office of Strategy and Performance at the Children's Hospital of Eastern Ontario and the Director of Healthcare Process Transformation and Director of Decision Support at The Ottawa Hospital. Cameron's experience over the past 26 has allowed him to acquire a strong blend of strategy, performance measurement, process improvement, and information management skills and knowledge. Cameron has a Master's Degree in Health Informatics and has received specialized training in the areas of Lean, business process management, performance measurement, system integration, project management and management.



BIO: Catherine is a Health Information Analyst on the Epidemiology team at Ottawa Public Health (OPH). Although mapping and statistics are her specialty, Cat is a jill of all trades and she has worked on a variety of portfolios at OPH, from child health and development to infectious diseases. She uses a range of information systems and software to compile and analyse large datasets and create data stories. Some of the products Cat has worked on that you may be familiar with are the COVID-19 dashboard and associated Open Ottawa datasets. Fun fact, Cat is also an expert on Ontario's amphibian and reptile species (she has a M.Sc. in Biology and was a professor at La Cite) and loves exploring nature with her two daughters.



ABSTRACT: The COVID-19 pandemic represents the most significant public health crisis we have faced in a century. This presentation will discuss the importance of data, analysis and reporting in Ottawa Public Health management of the COVID-19 response including an overview of our approach using key real life examples. We will also touch on key lessons learned from the pandemic.

**TUESDAY, JUNE 21, 2022**

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**11:15AM-12:00 PM (PDT)**  
**1:15-2:15 PM (CDT)**

**ENTREPRENEURISM**

**PANELISTS: CHRIS CARVALHO, CERTIFIED PROJECT MANAGEMENT PROFESSIONAL (PMP) & JEROME ETWAROO, DIRECTOR OF THE COAST CAPITAL INNOVATION CENTRE, UNIVERSITY OF VICTORIA.**

BIO: Chris is an experienced entrepreneur and senior leader that combines strategic thinking with an action-oriented approach to drive large change and transformation initiatives. Chris is a certified project management professional (PMP) with a proven track record of successfully delivering projects and has led numerous IT system implementations (50+) in various clinical settings across Western Canada. Chris has spent the majority of his career in the healthcare sector working with both public and private organizations and has built significant expertise on the implementation of Electronic Medical Records, Hospital Information Systems, and other digital health technologies. Chris is an active member in his local health innovation community and has a strong interest in identifying and validating how emerging digital health solutions can be successfully integrated into our current healthcare system. Chris has also worked as a mentor, advisor, and investor within many health start-up, scale-up and established businesses and organizations and is known as a community builder dedicated to advancing the health innovation ecosystem through commercialization efforts.



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Topic: Supporting Innovation to Create Impact

BIO: Jerome Etwaroo is the Director of the Coast Capital Innovation Centre at the University of Victoria. Jerome is a Professional Engineer with over 25 years of experience working in both academia and industry. During his career in industry, he has worked extensively in various roles, such as in the areas of telecommunication, electronic controls and payment systems as well as an entrepreneur. Prior to leading the Coast Capital Innovation Centre, Jerome worked six years as Industry liaison Officer and two years as the Contract Manager. Since 2016, Jerome has been leading the Coast Capital Innovation Centre, the on-campus startup incubator program at the University of Victoria. Under Jerome's leadership, the Centre has experienced a 10 fold increase of entrepreneurial activities. Over his career, Jerome has supported and worked with close to two hundred startup companies across all sectors.



**TUESDAY, JUNE 21, 2022**

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**1:00-2:00 PM (PDT)**

**3:00-4:00 PM (CDT)**

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**VISUALIZATION AND AUTOMATED DISEASE ANALYTICS IN CANADA'S LARGE-SCALE NATIONAL SARS-COV-2 GENOMIC SURVEILLANCE PROGRAM**

**KEYNOTE SPEAKER: GARY VAN DOMSELAAR, PHD, CHIEF BIOINFORMATICS SCIENTIST, THE NATIONAL MICROBIOLOGY LABORATORY & ASSOCIATE PROFESSOR, DEPARTMENT OF MEDICAL MICROBIOLOGY, UNIVERSITY OF MANITOBA**

BIO: Dr. Gary Van Domselaar, PhD (University of Alberta, 2003) is the Chief Bioinformatics Scientist at the National Microbiology Laboratory in Winnipeg Canada and Associate Professor in the Department of Medical Microbiology at the University of Manitoba. Dr. Van Domselaar's lab develops methods and pipelines to understand, track, and control circulating infectious diseases in Canada and globally. His research and development activities span metagenomics, infectious disease genomic epidemiology, genome annotation, population structure analysis, and microbial genome wide association studies. His lab contributes to large-scale national and international genomics and bioinformatics efforts, including the Bioinformatics Workgroup of the Canadian Genomics Research and Development Initiative Interdepartmental Project on Antimicrobial Resistance, the Integrated Rapid Infectious Disease Analysis (IRIDA) project to develop an integrated computational platform for infectious disease outbreak investigations, the Canadian COVID-19 genomics network (CanCOGeN), and the Canadian Public Health Laboratory Network COVID-19 Genomics Program. Dr. Van Domselaar serves on a number of national and international scientific advisory groups, including the US Centers for Disease Control's Office of Infectious Diseases, the Global Coalition for Science and Regulatory Research, and the Public Health Alliance for Genomic Epidemiology (PHA4GE).



ABSTRACT: Over the course of the COVID-19 pandemic, Canada has generated over 400,000 SARS-CoV-2 whole genome sequences, and the global community has submitted over 10 million sequences to the GISAID public sequence repository. The scale of genomic surveillance of SARS-Cov-2 nationally and internationally requires big data techniques make sense of this vast dataset. Dr. Van Domselaar built and currently leads Canada's national SARS-CoV-2 genomic surveillance program. In this presentation, he will provide an overview of SARS-CoV-2 genomic surveillance in Canada and the visualization and advanced disease analytics that are used to understand, track, and control COVID-19.

**2:15-2:45 PM (PDT)**

**4:15-4:45 PM (CDT)**

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**IS DATA REALLY THE NEW OIL?**

**SPEAKER: KAREN COURTNEY, RN, PHD, ASSOCIATE PROFESSOR, SCHOOL OF HEALTH INFORMATION SCIENCE, UNIVERSITY OF VICTORIA**

BIO: Dr. Karen Courtney is an Associate Professor and Graduate Advisor in the School of Health Information Science. Her background is in nursing and health informatics. She held a National Library of Medicine Predoctoral Fellowship in Health Informatics Research while completing her PhD in Nursing. She has a background in designing, conducting and evaluating community-based health information technology projects. These projects have community-dwelling individuals at the center and focus on meeting the self-identified needs and values of patients and family caregivers. She has an interest in ethical design and implementation of health information technologies, which is reflected in her research and teaching. She teaches a course in the ethical and societal implications of information technology. She is an active member of AMIA's Ethical, Legal and Social Issues Working Group and has co-lead panels on incorporating ethics into informatics education at undergraduate and graduate levels.



ABSTRACT: What are the ethical and societal implications of thinking of health data as a resource like oil? In this talk, we'll explore ideas about: 1. the effects of structural colonialism and racism on our data and subsequent clinical decision support systems; 2. health data ownership and sharing; and 3. strengths and gaps in our current codes of ethics regarding data.

**TUESDAY, JUNE 21, 2022**

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**2:45-3:15 PM (PDT)**  
**4:45-5:15 PM (CDT)**

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**BEST PRACTICES IN THE MANAGEMENT OF DATA IN HEALTH RESEARCH –  
THE UNIVERSITY CONTEXT**

**SPEAKER: EUGENIE LAM, MA, MANAGER, HUMAN RESEARCH ETHICS, OFFICE OF RESEARCH SERVICES, UNIVERSITY OF VICTORIA**

BIO: Eugenie has held the position of Research Ethics Manager at the University of Victoria since 2006. In this role she supports students and faculty researchers as well as the university's Strategic Research Plan (Aspiration 2030) and is dedicated to creating innovations and guidance to support the changing environment of university research. She is currently on the Advisory Council of Research Ethics BC and the university's Research Data Management Working Group. Eugenie was in the original group of leaders who created and implemented a one-stop provincial harmonized process for multi-jurisdictional research ethics (now consisting of 22 post-secondary institutions and health authorities). Eugenie has an MA in educational psychology and a background in community-based research and is a settler living and working in the traditional territories of the the lək̓wəŋən peoples and the Songhees, Esquimalt and WSÁNEĆ peoples.

ABSTRACT: Various stakeholders and partners (e.g., data stewards, research ethics board, Indigenous nations, community organizations, university IT departments etc.) each play a key role in the shared management of data (secondary use and primary data) together with the researcher and research teams. My presentation is on best practices from the perspective of a university's Research Ethics Board with special consideration on the interacting contexts of research data through the life of a project and beyond.



**3:15-4:00 PM (PDT)**  
**5:15-6:00 PM (CDT)**

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**CONVERSATIONAL AGENTS MEET MOBILE HEALTH APPLICATIONS**

**KEYNOTE SPEAKER: KERSTIN DENECKE, PROFESSOR OF MEDICAL INFORMATICS, INSTITUTE FOR MEDICAL INFORMATICS (I4MI), BERN UNIVERSITY OF APPLIED SCIENCES**

BIO: Kerstin Denecke has a long experience in analyzing medical texts and developing information extraction methods. The focus of her doctoral studies was medical language processing. Professor of Medical Informatics at the Institute for Medical Informatics (I4MI) at Bern University of Applied Sciences since 2015, she has been developing methods for complex extraction tasks using medical ontologies and terminology services. Before, she was scientific director of the digital patient modelling group at the Innovation Center for Computer Assisted Surgery, Leipzig, Germany. Current research concerns also conversational agents in healthcare and their evaluation. She coordinated the EU project M-Eco, targeted at identifying disease outbreaks using social media. Other current projects focus on clinical natural language processing, such as automatically structuring radiology reports.

ABSTRACT: Conversational agents (CA) are increasingly developed for interactive health applications to collect patient health data, to provide information or even to deliver health interventions. CA are dialog systems that often integrate techniques from computer linguistics and allow interacting with users by means of natural language, speech or other modalities. Interacting with intelligent agents is not a new topic, but reliable linguistic functionality, availability as services and inclusion of intelligence through machine learning and deep learning has increased its popularity. For example in commercial settings, interactions with conversational bots in customer service increased between 2007 and 2015. In this talk, example applications in healthcare will be described. In addition, you will learn about the different types of CA. Insights into lessons learnt from developing and evaluating such systems will be shared.



# WEDNESDAY, JUNE 22, 2022

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9:00-9:15 AM (PDT)  
11:00-11:15 AM (CDT)

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## WELCOME & RECAP

SPEAKERS: ELIZABETH BORYCKI & ANDRE KUSHNIRUK

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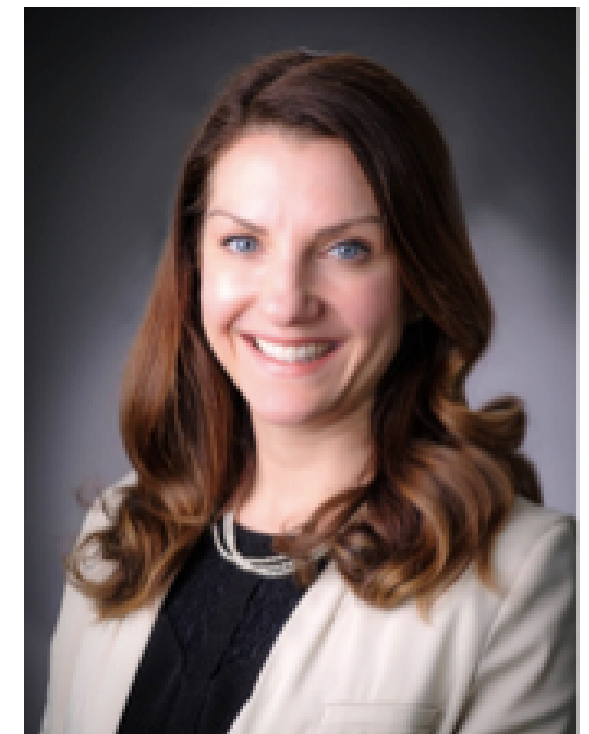
9:15-10:15 AM (PDT)  
11:15 AM-12:15PM (CDT)

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## BC DIGITAL HEALTH STRATEGY UPDATE

**SPEAKERS: SHANNON MALOVEC**, VP PROVINCIAL DIGITAL HEALTH AND CHIEF DIGITAL HEALTH OFFICER, PROVINCIAL HEALTH SERVICES AUTHORITY (BRITISH COLUMBIA) & **MAY TUASON**, DIRECTOR, CLINICAL ARCHITECTURE & INNOVATION, DIGITAL HEALTH STRATEGY OFFICE, PROVINCIAL DIGITAL HEALTH TEAM, PHSA, MOH

BIO: Shannon is a highly skilled health informatics leader, passionate about transforming healthcare through patient engagement and experienced in strategic planning, portfolio/program management, and systems implementation. Shannon is the VP Provincial Digital Health and Chief Digital Innovation Officer for BC Provincial Health Services Authority. In her role Shannon works with the Ministry of Health and the BC Health Authorities to drive digital health advancements in the Province. Prior to PHSA, Shannon served as Principal, Patient Engagement at TELUS Health. In her role Shannon led the strategy development, product management, delivery management, and operations of TELUS Health's patient facing applications, including Personal Health Record, Home Health Monitoring, and EMR Portals. She also led the execution of major health transformation initiatives and was responsible for the delivery of consulting services. Shannon has also worked with a health management consulting company in Canada and in the United States and was engaged in strategic planning, project management and implementation initiatives. Shannon spent time working with various healthcare organizations, hospitals and private sector IT companies in Toronto, New York and Illinois where she was involved in the planning and implementation of a variety of clinical solutions.



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BIO: May is a Registered Nurse and highly skilled digital health leader with over 20 years of work experience in private and public sectors in Canada and the US. Currently, May is the provincial program director for the ImmsBC COVID-19 vaccine management digital platform, responsible for the registration and communications about vaccine access to the more than 4.5 million eligible citizens in BC, as well as central management of COVID vaccine inventory tracking and immunization records. With a blend of clinical, technical, and business expertise, May holds a Master's Degree in Business Administration from the University of Liverpool, UK and a Bachelor's Degree of Science in Nursing from the University of British Columbia. May is also a Certified Professional in Information Management Systems (CPHIMS), Project Management Professional (PMP), PROSCI Certified Change Practitioner, and Certified Scrum Product Owner (CSPO).



10:30-11:30 AM (PDT)  
12:30-1:30 PM (CDT)

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## **PUBLIC HEALTH INFORMATICS**

**KEYNOTE SPEAKER: WILLIAM A. VASNOFF, MD, PHD, FACMI** ADJUNCT PROFESSOR, DIVISION OF HEALTH SCIENCE INFORMATICS, JOHNS HOPKINS UNIVERSITY MANAGING PARTNER, NHII ADVISORS

BIO: Dr. William Yasnoff, a well-known national leader in health informatics, is Managing Partner of National Health Information Infrastructure (NHII) Advisors, a consulting firm that helps communities and organizations successfully develop and deploy health information infrastructure systems and solutions. He is also Adjunct Professor of Biomedical Informatics and Data Science at Johns Hopkins University, and Founder and President of the non-profit Health Record Banking Alliance, which promotes community repositories of patient-controlled electronic health information. In his prior position at the U.S. Department of Health and Human Services, he established the NHII as a widely recognized national goal by initiating and organizing the activities resulting in the creation of the Office of the National Coordinator for Health Information Technology in 2004 by Executive Order of the President of the U.S. Earlier, he implemented the first successful statewide immunization registry in the U.S. (in Oregon), then spent five years at the Centers for Disease Control and Prevention (Atlanta) doing pioneering work to establish the field of public health informatics. He also served for 8 years as a Member of the Board on Population Health and Public Health Practice of the National Academy of Medicine, and for 20 years as Associate Editor, Journal of Biomedical Informatics. He was a Board Member of the American Medical Informatics Association in 2003-4, and has authored over 400 publications and presentations, including the "Health Information Infrastructure" chapter in the 5th Edition of the widely used textbook Biomedical Informatics: Computer Applications in Healthcare and Medicine (Springer, 2021), and Personal Health Records: The Essential Missing Element in 21st Century Healthcare (HIMSS, 2009). Dr. Yasnoff is a serial entrepreneur and spent several years as an advisor to a venture capital firm. He earned his Ph.D. in computer science (for work in pattern recognition and image analysis) and M.D. from Northwestern, received an honorary DrPH from the University of Louisville in 2006, and was elected a Fellow of the American College of Medical Informatics in 1989.



ABSTRACT: Public health promotes healthy communities through activities including preventing and responding to outbreaks and epidemics, protecting against environmental hazards, promoting healthy behaviors, and ensuring access to quality health services. Current public health challenges include antibiotic-resistant pathogens, emerging infectious diseases, and early outbreak detection and effective response. While information systems are already extensively used in these efforts, their full potential has yet to be realized. Public health informatics (PHI), the systematic application of information and computer science to public health practice, research, and learning, is critical to expanding the effective use of information technology (IT) in public health. The four key principles of public health informatics are: 1) population focus; 2) prevention vs. treatment; 3) wide scope of interventions; and 4) governmental context. Immunization information systems, which store and retrieve comprehensive immunization records for a specific population, are successful examples of how PHI can empower public health to achieve heretofore unattainable goals. Applying state-of-the-art principles of information architecture and system design to public health allows the development and implementation of effective and efficient IT solutions to support and improve public health practice.

### Learning Objectives:

1. Understand the three core functions of public health
2. List the four principles of public health informatics (PHI)
3. State the three key elements of information architecture
4. Describe the four key functions of an immunization information system (IIS)
5. Understand the importance of integrating health information infrastructure with public health

# CONGRATULATIONS TO GRADUATES OF THE VISUAL AND AUTOMATED DISEASE ANALYTICS GRADUATE TRAINING PROGRAM!

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**THANK YOU TO ALL WHO MADE THE 2022 VADA PROGRAM SUMMER SCHOOL A SUCCESS, INCLUDING FACULTY, STAFF, AND STUDENTS FROM THE UNIVERSITY OF MANITOBA AND THE UNIVERSITY OF VICTORIA AND TO NSERC FOR PROVIDING THE FUNDING FOR THE VADA PROGRAM.**

