CAHSPR ACRSPS

Canadian Association for Health Services and Policy Research

L'Association canadienne pour la recherche sur les services et les politiques de la santé

2019 CAHSPR POLICY FORUM

ARTIFICIAL INTELLIGENCE AND LEARNING HEALTH SYSTEMS:
HOW TO MAKE TWO GOOD IDEAS HAPPEN IN THE CANADIAN HEALTH SYSTEM

JANUARY 14-15, 2019
DELTA TORONTO HOTEL (TORONTO, ON)

2019 ACRSPS FORUM SUR LES POLITIQUES

INTELLIGENCE ARTIFICIELLE ET SYSTÈMES DE SANTÉ APPRENANTS :
COMMENT CONCRÉTISER DEUX BONNES IDÉES DANS LE SYSTÈME DE SANTÉ CANADIEN

DU 14 AU 15 JANVIER 2019
HOTEL DELTA TORONTO (TORONTO, ON)

MONDAY, JANUARY 14, 2019

8:00AM – 9:00AM	Breakfast

9:00AM – 10:30AM

Introductory Panel: Introducing The Ideas
What do we mean by learning health systems in the Canadian context? Making the Argument for the Use of AI in healthcare.

Presented by:
JOHN LAVIS, Professor, Department of Health, Evidence and Impact for Faculty of Health Sciences, McMaster University
MARIE-JOSÉE HÉBERT, Vice-Rector for Research, Discovery, Creation and Innovation, Université de Montréal

Moderated by:
DENIS ROY, Vice-President, Science and Clinical Governance, Institut national d'excellence en santé et en services sociaux

10:30AM – 11:00AM	Health Break

11:00AM – 12:00PM

Illustrative Example 1:
Using Artificial Intelligence to Assist in Tumor Radiation

Presented by:
DAVID JAFFRAY, Executive VP Technology and Innovation, University Health Network; Fidani Chair and Head, Department of Medical Physics, Princess Margaret Cancer Centre; Director, Techna Institute, University Health Network; Professor, Departments of Radiation Oncology, MBP & IBBME, University of Toronto

TOM PURDIE, Assistant Professor, Department of Radiation Oncology, University of Toronto; Medical Physicist, Princess Margaret Hospital/University Health Network

Moderated by:
FRANK MARKEL, Executive Director, CAHSPR

12:00PM – 1:00PM	Lunch

1:00PM – 2:00PM

What Will It Take To Implement AI In Healthcare?
Ethical and Legal Considerations

Presented by:
JENNIFER GIBSON, Sun Life Financial Chair in Bioethics & Director, Joint Centre for Bioethics, University of Toronto
MARY JANE DYKEMAN, Partner, DDO Health Law

Moderated by:
FRANK GAVIN, Director, Canadian Family Advisory Network

2:00PM – 2:30PM	Health Break

2:30PM – 3:30PM

The Use of Artificial Intelligence For Improving Population Health: A Promising Tool For Learning Health Systems

Presented by:
WALTER WODCHIS, Professor, Institute of Health Policy Management and Evaluation, University of Toronto; Research Chair, Institute for Better Health, Trillium Health Partners

LAURA ROSELLA, Associate Professor, Epidemiology Division for Dalla Lana School of Public Health, University of Toronto

Moderated by:
ALAN KATZ, Director of the Manitoba Centre for Health Policy and Professor in the Departments of Community Health Sciences and Family Medicine, University of Manitoba

3:30PM – 4:30PM

Introducing & Implementing Learning Health Systems: The Realities

Presented by:
TOM NOSEWORTHY, Professor of Community Health Sciences, University of Calgary & CEO of British Columbia Academic Health Science Network

Moderated by:
ROXANE BORGÉS DA SILVA, Associate Professor, Department of Health Management, Evaluation and Policy at the School of Public Health of University of Montreal

4:30PM – 6:30PM	Networking Reception

TUSEDAY, JANUARY 15, 2019

8:00AM – 9:00AM	**Breakfast**

9:00AM – 10:30AM	**How Will AI and Learning Health Systems Impact the Health Work Force?** Providing compassionate care in the world of AI Presented by: **BRIAN HODGES,** Executive Vice-President, Education and Chief Medical Officer, University Health Network; Professor, Faculty of Medicine, University of Toronto; Senior Strategy Advisor, AMS Healthcare Moderated by: **GAIL PAECH,** CEO, AMS Healthcare

10:30AM – 11:00AM	**Health Break**

11:00AM-12:00PM	**Illustrative Example 2:** The Use of AI in Cancer Genomics Presented by: **QUAID MORRIS,** Professor, Department of Molecular Genetics, University of Toronto **PHILIP AWADALLA,** Professor, Department of Molecular Genetics, University of Toronto; Director, Genome Canada Canadian Data Integration Centre; Director, Computational Biology, OICR; Executive Scientific Director, Ontario Health Study; National Scientific Director, Canadian Partnership for Tomorrow Project Moderated by: **JULIA ZARB,** Assistant Professor/Program Director, Institute for Health Policy, Management and Evaluation, University of Toronto

12:00PM – 1:00PM	**Lunch**

1:00PM – 2:00PM	**Moving Forward the Introduction of AI in the Canadian Health System** Presented by: **OSMAR ZAÏANE,** Professor, Department of Computing Science & Director, Alberta Machine Intelligence Institute, University of Alberta **SUE PAISH,** CEO, Canada's Digital Technology Supercluster Moderated by: **ALISON PAPRICA,** Vice President, Health Strategy and Partnerships, Vector Institute

2:00PM – 2:30PM	**Health Break**

2:30PM – 3:30PM	**Making Sense of What We've Heard** Presented by: **LISE GAUVIN,** Professor & Associate Dean for Research, School of Public Health of the Université de Montréal **SASHA BHATIA,** Director, Women's College Hospital Institute for Health System Solutions and Virtual Care Cardiologist Moderated by: **DENIS ROY,** Vice-President, Science and Clinical Governance, Institut national d'excellence en santé et en services sociaux

3:30PM – 3:45PM	**Closing Remarks**

Speaker and Moderator Biographies

PHILIP AWADALLA is the National Scientific Director for the Canadian Partnership for Tomorrow Project, Director of Computational Biology and the Executive Scientific Director of Ontario Health Study at the Ontario Institute for Cancer Research, and Professor of Population and Medical Genomics at the University of Toronto. He is Director of the Genome Canada, Canadian Data Integration Centre. He obtained his doctorate in population and statistical genetics from the University of Edinburgh and was awarded NSERC, Killam, and Wellcome Trust Fellowships to pursue his postdoctoral work before taking faculty positions at North Carolina and the University of Montreal. He was the Scientific Director of CARTaGENE, and was part of the analysis groups of the 1000 Genomes Program and PCAWG. Major projects include genomics of aging, hematological diseases and cancers. Other projects include estimating mutation and recombination rates; computational approaches to developing pan-cancer biomarkers for early detection; and identify genetic and environmental control points for infectious diseases in Africa.

SACHA BHATIA is the FM Hill Chair in Health Systems Solutions and the Founding Director of the Institute for Health System Solutions and Virtual Care (WIHV) at Women's College Hospital. He is also the division director of cardiology at WCH and staff cardiologist at UHN. He is the national evaluation lead of the Choosing Wisely Canada campaign, a scientist at the Institute for Clinical Evaluative Sciences, and an Assistant Professor at the University of Toronto. He has been published in international peer reviewed journals like the New England Journal of Medicine and JAMA Internal Medicine. He has been a commentator on Bloomberg News, CTV News and the CBC, and has been asked to give over 80 presentations internationally, nationally and regionally since 2013. He is a recipient of the American College of Cardiology's Young Investigator Award, the American Society of Echocardiography's Arthur E. Weyman Young Investigator Award. Most recently he was awarded the Goldie Award for Quality and Innovation as well as the Louise Lemieux Charles Emerging Leaders Award by the University of Toronto. He sits on the boards of the Heart and Stroke Foundation and DREAM Global REIT, a publicly traded company listed on the TSX. Previously he worked as a clinical and research fellow in cardiology at Massachusetts General Hospital and Harvard University. Dr. Bhatia received his medical degree and MBA at McGill University and his internal medicine and cardiology training in Toronto.

ROXANE BORGÈS DA SILVA is an Associate Professor, Department of Health Management, Evaluation and Policy at the School of Public Health of University of Montreal and a researcher at Université de Montréal Public Health Research Institute (IRSPUM) and at the Center for Interuniversity Research and Analysis of Organizations CIRANO). She received her PhD in Public Health and Medical Care Organisation from Université de Montréal, and her Master Degree in Econometrics from Université Aix-Marseille. She currently holds a Research Scholar Career Award from the Fonds de recherche du Québec – Santé. Her research agenda focuses on improving efficiency in health care organisations.

MARY JANE DYKEMAN is a partner at DDO Health Law, a Toronto boutique law firm. She regularly assists hospitals, long-term care homes and other health sector stakeholders to find practical solutions to legal, clinical, risk and privacy matters. Mary Jane has extensive experience responding to privacy breaches, advising on the creation of complex shared health information systems, and training the health sector (including privacy officers) on legislative requirements and key developments. She routinely conducts privacy impact assessments and provides advice on data sharing within large health sector initiatives. She also works extensively on specialized issues in health research and data use, as well as advising on patient portals, discussion boards, website content and assisting mobile app developers in the health care space. Mary Jane teaches mental health in Osgoode's Health Law LL.M. program, is Vice-Chair of the Alzheimer Society of Toronto and Deputy Chair of the Canadian Blood Services Research Ethics Board.

LISE GAUVIN completed her doctorate in physical activity sciences in 1985 at the *Université de Montréal*. She has held academic positions at Queen's University, Concordia University, and *Université de Montréal*. In September 2015, she was named a Fellow of the Canadian Academy of Health Sciences. Her research focuses on socio-environmental determinants of involvement in physical activity, the reach, acceptability, and impact of interventions to promote physical activity and prevent eating disorders, and social inequalities in health. She uses innovative data collection and analysis techniques including ecological momentary assessment, multilevel modeling, and natural experiments to gain new insights into intervention. In addition to publishing her work in the peer-reviewed scientific literature, Dr Gauvin is actively engaged in knowledge transfer and exchange activities developed in partnership with researchers, policy-makers, and practitioners working in public health.

FRANK GAVIN is a parent who has worked as a volunteer to advance child health and family-centred care since 1995. He served on and chaired the Family Advisory Committee to The Hospital for Sick Children and in 2002 helped found The Canadian Family Advisory Network (CFAN), chairing or co-chairing CFAN in its first six years. He now directs CFAN's national activities, represents CFAN on The Canadian Child and Youth Health Coalition, participates on the Research Advisory Committee of CIHR's Parenting Matters project, and is a board member of The Institute of Families for Child and Youth Mental Health. In September 2011 Frank was appointed by The Canadian Agency for Drugs and Technologies in Health as one of two public members of The Canadian Drug Expert Committee. He taught English at Centennial College in Toronto for nearly thirty years. Frank received the first Volunteer Humanitarian Award from The Hospital for Sick Children in 2002 and the Contribution to Child Health Award from The Canadian Association of Paediatric Health Centres in 2008

JENNIFER GIBSON is Sun Life Financial Chair in Bioethics and Director of the University of Toronto Joint Centre for Bioethics, Associate Professor in the Dalla Lana School of Public Health, and Director of the World Health Organization Collaborating Centre for Bioethics at the University of Toronto. Jennifer has a PhD in Philosophy. Her program of research employs qualitative social science methods and normative analysis to study ethical issues in health institutions and systems. She is particularly interested in the role and interaction of values in decision-making at different levels in the health system. Currently, she is leading a new program of research on 'Ethics and AI for Good Health'. Jennifer has served on government and policy advisory committees related to medical assistance in dying, public health emergency preparedness, public health surveillance, critical care triage, drug funding and supply, and healthcare resource allocation. She also works closely with the World Health Organization on global health ethics issues.

MARIE-JOSÉE HÉBERT earned a specialized degree in nephrology at the Université de Montréal, followed by postdoctoral studies at Harvard. Dr. Hébert is a researcher and nephrologist-transplant physician at CHUM, professor in the faculty of medicine and holds the Shrine Chair in Renal Transplantation and Regeneration. She is also co-director of the Canadian National Transplant Research Program and founder of numerous interdisciplinary and cross-sectoral research groups. Her work has enabled the discovery of new mechanisms at work in the rejection of transplanted organs. In 2015, Dr. Hébert received the Dr. John B. Dossetor Award from the Kidney Foundation of Canada in recognition of her outstanding contribution to research in kidney diseases.

BRIAN D. HODGES, MD, PhD, FRCPC is Professor in the Faculty of Medicine and at the Ontario Institute for Studies in Education at the University of Toronto; the Richard and Elizabeth Currie Chair in Health Professions Education Research at the Wilson Centre and Executive-Vice President Education and Chief Medical Officer at the University Health Network (Toronto General, Toronto Western, Princess Margaret, Toronto Rehab Hospitals and the Michener Institute). He is a practicing psychiatrist and teacher. His research focuses on assessment, competence, compassion and the future of the health profession. His work has been recognized with the Association of American Medical Colleges Flexner Award (2015) and the Karolinska Institutet Prize for Research in Medical Education (2016).

DAVID JAFFRAY graduated from the University of Alberta with a B.Sc. in Physics (Hons.) in 1988 and completed his Ph.D. in the Department of Medical Biophysics at the University of Western Ontario in 1994. Following graduation, he took a position as Staff Physicist in the Department of Radiation Oncology at William Beaumont Hospital in Michigan where he instigated a direction of research that garnered funding from the NIH and from congressionally-directed funding programs. Dr. Jaffray became a Board Certified Medical Physicist (ABMP – Radiation Oncology) in 1999. In 2002, Dr. Jaffray joined the Princess Margaret Hospital in Toronto as Head of Radiation Physics and a Senior Scientist within the Ontario Cancer Institute. David holds the Fidani Chair in Radiation Physics, is the Director of the TECHNA Institute for Health Technology Development at the University Health Network. In October of 2015, he became the Executive Vice President of Technology and Innovation at the University Health Network. He is a Professor in the Departments of Radiation Oncology, Medical Biophysics, and Institute for Biomaterials and Biomedical Engineering at the University of Toronto. His primary area of research has been in the development and application of image-guided cancer therapy. He has over 5 patents issued and several licensed, including, kilovoltage cone-beam computed tomography for image-guided radiation therapy. Dr. Jaffray has >275 peer-reviewed publications in the field, >100 invited lectures, and holds numerous peer-review and industry sponsored research grants. He sits on numerous scientific and research boards and has contributed to the NIH and CIHR grant review process for several years. He is an active member of the AAPM and teaching role in workshops and annual meeting of the American Society of Therapeutic Radiation Oncology (ASTRO). He has an active interest in commercialization and led the development of a variety of commercial products including software and hardware for QA and the development of small animal irradiator systems for basic research. He has successfully supervised over 20 graduate students and fellows. Dr. Jaffray has won each of the major prizes in the field of the medical physics, including, the Sylvia SorkinGreenfield Award, The Farrington Daniels Award, and the Sylvia Fedoruk Award. In 2004, Dr. Jaffray was identified as one of Canada's Top 40 Under 40 and was recognized by the University of Western Ontario with their Young Alumni Award in 2004 and its Excellence in Basic Sciences Research Award in 2013. In the spring of 2018, Dr. David Jaffray was awarded the 2018 ASTRO Gold Medal for his contributions to the field of Radiation Oncology. His current research interests concentrate on the development of imaging technologies and methods with a focus on image-guided interventions, including radiation therapy, drug delivery, and surgery. He is currently focusing on large scale transformation to digitally-enable Canada's largest research hospital.

ALAN KATZ is the Director of the Manitoba Centre for Health Policy and Professor in the Departments of Community Health Sciences and Family Medicine at the University of Manitoba. He is also the MHRC Chair in Primary Prevention Research. He received his medical training at the University of Cape Town in South Africa and a MSc from the University of Manitoba. He has worked in rural Saskatchewan and in the core area of Winnipeg. He is a past chair of the Health Research Ethics Board in the Max Rady College of Medicine, Rady Faculty of Health Sciences and has been a researcher at the Manitoba Centre for Health Policy for over 14 years. His research is focused on Primary Care delivery in First nations communities and quality of care indicators, knowledge translation and disease prevention. He currently holds over $4 million in research grants as the nominated principal investigator and is a co-investigator on grants valued at over $10 million.

JOHN LAVIS holds the Canada Research Chair in Evidence-Informed Health Systems. He is the Director of the McMaster Health Forum (and Forum+), Co-Director of the World Health Organization (WHO) Collaborating Centre for Evidence-Informed Policy, and Professor in the Department of Health Evidence and Impact at McMaster University. He is also Distinguished Visiting Professor at the University of Johannesburg. John supports policymakers and stakeholders to harness research evidence, citizen values and stakeholder insights to strengthen health and social systems and get the right programs, services and products to the people who need them. He does this work in Canada through the Forum and in a broad range of countries internationally through two Forum-supported networks: Evidence-Informed Policy Network (EVIPNet) and Partners for Evidence-driven Rapid Learning in Social Systems (PERLSS). He holds an MD from Queen's University, an MSc from the London School of Economics, and a PhD (in Health Policy) from Harvard University.

FRANK MARKEL, Ph.D., has had a long and varied career in health care. Frank has held several senior administrative positions in the course of his career including the following: President and CEO of Trillium Gift of Life Network, Ontario's organ and tissue donation organization, Executive Vice President of Toronto Rehabilitation Institute, President and CEO of Hillcrest Hospital, and Vice-President, Planning at St. Joseph's Health Centre. Frank has also worked in the policy area. His roles there include that of Executive Director, the Joint Policy and Planning Committee, and Executive Director of the then Ontario Council of Administrators of Teaching Hospitals. Throughout his career, Frank has taught in the University of Toronto's program in health administration. He holds the title of Adjunct Assistant Professor in the Institute of Health Policy, Management and Evaluation.

QUAID MORRIS is a professor at the Donnelly Centre for Cellular and Biomolecular Research at the University of Toronto where he holds cross-appointments in Molecular Genetics and Computer Science and he is the Co-director of the Graduate Stream in Computational Biology. Dr Morris is also a faculty member of the Vector Institute for Artificial Intelligence in Toronto. Dr. Morris pursued graduate training and research in machine learning at the Gatsby Unit at the University College London, England and obtained his PhD in Computational Neuroscience from Massachusetts Institute of Technology. His B.Sc. is in computer science, and he did his postdoc in computational biology with Drs Brendan Frey and Timothy Hughes, both at the University of Toronto. Morris lab uses machine learning and artificial intelligence to do biomedical research, focusing on cancer evolution, post-transcriptional regulation, and gene function prediction. His lab is also interested in electronic health records, auto-immune disease, and biological image analysis. His publication record can be viewed on Google Scholar.

TOM NOSEWORTHY is Professor (Health Policy & Management), Community Health Sciences and O'Brien Institute for Public Health, Cumming School of Medicine, University of Calgary. He is former Head of that Department and inaugural Co-Director and founder of that Institute. He formerly served as Chair of Public Health Sciences, University of Alberta. Dr Noseworthy is trained in Internal Medicine and Critical Care, with current certification in the Royal College of Physicians and Surgeons of Canada (FRCPC), American Colleges of Physicians (FACP); and past certification in the American College of Chest Physicians (FCCP) and American College of Critical Care Medicine (FCCM). He holds a Master of Science in Experimental Medicine (University of Alberta) and Master of Public Health - Health Policy & Management (Harvard). Dr Noseworthy's experience in healthcare management includes VP Medicine and later CEO of the Royal Alexandra Hospitals (1989 – 1995). He joined Alberta Health Services as an embedded researcher 2011-2015 and was the Associate Chief Medical Officer, Strategic Clinical Networks. In 2005, Dr Noseworthy received the Alberta Centennial Medal and was named as one of Alberta's Top 100 Physicians of the Century by the Alberta Medical Association and College of Physicians and Surgeons. In 2007, Dr Noseworthy was appointed to the Order of Canada, for contributions to health policy and Medicare. In 2012, he received the Diamond Jubilee Medal. In 2017, Dr Noseworthy was inducted into the Canadian Academy of Health Sciences. In June 2018, he assumed the position of inaugural CEO - British Columbia Academic Health Science Network.

GAIL PAECH - Early in her career, Ms. Paech held several senior administrative roles in Nursing and was Director of a Health Care Practice for a global consulting company. Ms. Paech served as Associate Deputy Minister of Economic Development and Trade and Assistant Deputy Minister of Health and Long-Term Care in Ontario. In these roles she showed exemplary capacity for strategic leadership and was responsible for implementing several high-profile provincial initiatives. Most recently, she served as Chief Executive Officer of the Ontario Long-Term Care Association where she inspired positive changes through the development of a strategic plan aimed at achieving future growth and sustainability. Between 1991 and 1998 she was the President and CEO of Toronto East General Hospital. Ms. Paech holds a Bachelor of Science in Nursing from the University of Ottawa and a Master of Science in Nursing from the University of Toronto. She has been an Assistant Professor in the Faculties of Nursing and Medicine at the University of Toronto.

SUE PAISH has led transformation and innovation across professional services, healthcare and technology - driving business growth, and leading large-scale organizational change. Sue is the inaugural CEO of Canada's Digital Technology Supercluster – one of the most innovative and meaningful initiatives for the Canadian economy in a generation. Sue was one of Canada's foremost employment and labour law lawyers, and the youngest managing partner at her firm where she oversaw the firm's growth across three continents, leading it through one of the most significant mergers in the country. She seamlessly transitioned to corporate leadership, first as the CEO of Pharmasave, Canada's largest chain of independent retail pharmacies and then as CEO of LifeLabs Diagnostic Laboratories, where she doubled the company's size to create Canada's largest diagnostic lab, while driving innovations in technology, genetics and stakeholder relations. In her role as CEO of Canada's Digital Technology Supercluster (CDTS), Sue will oversee innovative cross-sector projects and initiatives that will digitally transform Canada's leading industries, create jobs and grow our economy. Together with the 350+ member organizations, CDTS will lead multi-dimensional collaborations producing innovative digital solutions to industry issues and capture new economy opportunities, making Canada a global leader in digital technology. Sue and her husband Brad are the proud parents of three daughters- all of whom love exploring Canada's wilderness. Sue has been recognized for community and business leadership with award including: Honorary Doctorate of Technology (BCIT), UBC Faculty of Law Distinguished Alumni Award, YWCA Woman of Distinction, Queen's Counsel, Hall of Fame for Canada's Top 100 Most Powerful Women, and an Influential Women in Business Lifetime Achievement Award. When not driving transformation in business Sue can be found on remote trails across BC, hiking, camping, fishing and enjoying all that BC's outdoors has to offer.

ALISON PAPRICA - As Vice President, Health Strategy and Partnerships, Alison Paprica is the Vector Institute's corporate lead for health strategy, overseeing health research collaborations, health data partnerships and health AI application projects. Prior to joining Vector in November 2017, Alison's roles included: Director, Strategic Partnerships at the Institute for Clinical Evaluative Sciences (ICES), Director of the Planning, Research & Analysis Branch at the Ontario Ministry of Health & Long-Term Care (responsible for up to $60 million of annual health research investment) and Manager of Performance Measurement & Results at the Ontario Ministry of Research & Innovation. From 1993-2001 she worked in international pharmaceutical R&D at Eli Lilly, Astra Pharma and Genpharm Inc. Alison holds an Honours Combined BSc in Biochemistry and Chemistry (McMaster), a PhD in organic chemistry (Western University) and is Assistant Professor (status) at IHPME. She is among the first 5% of people to obtain Project Management Professional (PMP) certification internationally and led the development and delivery of two University of Toronto courses focused on project management for research.

THOMAS PURDIE graduated from McMaster University, Hamilton, Ontario, Canada with a B.Sc. (Hons.) in the Medical and Health Physics program of the Department of Physics and Astronomy in 1997. He then completed his Ph.D. in the Department of Medical Biophysics at the University of Western Ontario in London, Ontario, Canada in 2002. Following graduate school, he completed a medical physics residency and research fellowship at Princess Margaret Cancer Centre (Toronto, Ontario Canada) in 2005. He is currently a Staff Medical Physicist in the Radiation Medicine Program, Princess Margaret Cancer Centre and became a Board Certified Medical Physicist (CCPM – Radiation Therapy Physics) in 2007. He is an Associate Professor in the Department of Radiation Oncology, University of Toronto and Affiliated Faculty at the Techna Institute, University Health Network. Dr. Purdie's research focuses on developing and clinically implementing machine learning based treatment planning and quality assurance (QA) processes in radiation oncology.

LAURA ROSELLA an Associate Professor in the Dalla Lana School of Public Health at the University of Toronto where she holds a Canada Research Chair in Population Health Analytics and is the Scientific Director of the Population Health Analytics Lab. She also holds scientific appointments at ICES and Public Health Ontario and is a Faculty Affiliate at the Vector Institute for Artificial Intelligence. Her research interests include population health and population-based risk tools to support health decision-making using multiple data sources. She is currently conducting comparative research using difference machine learning methodologies for health system applications.

DENIS ROY is currently the vice president of Science and Clinical Governance at INESSS (Institut national d'excellence en santé et en services sociaux / Institute for Excellence in Health and Social Services). INESSS's mission is to promote clinical excellence and the efficient use of resources in the health and social services sector. Dr. Roy specializes in public health. His work history includes a series of leadership roles within the health environment, including that of vice president of Scientific Affairs at the Institut national de santé publique du Québec (Quebec's public health institute) and director of Information and Knowledge Management at the Montérégie health and social services agency. He holds a medical degree from Laval University, a master's degree in public health from the University of California at Berkeley, and a master's degree in epidemiology and a specialty certificate in community health from McGill University. He holds a fellowship from The Commonwealth Fund as a Harkness Associate in health care policy. Dr. Roy is an associate professor of medicine (Department of Social and Preventive Medicine) at the University of Montréal and an adjunct professor at the Faculty of Medicine and Health Sciences at the University of Sherbrooke and at McGill University.

WALTER WODCHIS is Professor at the Institute of Health Policy, Management and Evaluation at the University of Toronto and Research Chair in Implementation and Evaluation Science at the Institute for Better Health, Trillium Health Partners. His main research interests are health economics and financing and health care policy evaluation. Through his research programs which include more than 30 collaborating researchers and as many trainees, Dr. Wodchis has lead several studies examining complex needs of high cost patient groups, the implementation of integrated care programs to address those needs, and evaluations for a number of integrated care programs in Ontario.

OSMAR R. ZAÏANE is a Professor in Computing Science at the University of Alberta, Canada, and Scientific Director of the Alberta Machine Intelligence Institute (Amii). Dr. Zaïane obtained his Ph.D. from Simon Fraser University, Canada, in 1999. He has published more than 270 papers in refereed international conferences and journals. He is Associate Editor of many International Journals on data mining and data analytics and served as program chair and general chair for scores of international conferences in the field of knowledge discovery and data mining. Dr. Zaïane received numerous awards including the 2010 ACM SIGKDD Service Award from the ACM Special Interest Group on Data Mining, which runs the world's premier data science, big data, and data mining association and conference.

JULIA ZARB, PhD is an Assistant Professor at University of Toronto, and Program Director of the Master's of Health Informatics (MHI) at the Institute for Health Policy, Management and Evaluation, Dalla Lana School of Public Health. In addition to managing MHI, which is offered in regular and executive streams and is recognized by the Vector 1000 AIMs initiative, Julia instructs and oversees the practicum, health information project, and capstone courses for the program. Of 22 years in health information technology strategy and marketing leadership, she has spent 14 in the US arena and 10 years on corporate executive teams. Her own firm, Zarb Consulting, served dozens of clients in national-scale initiatives, including Allergan, Allscripts, American College of Cardiology, Partners' Healthcare (Harvard/CITL), Siemens Healthcare, McKesson and Health Information Management Systems Society (HIMSS), as well as multiple start-up and mid-stage organizations. Julia was a co- founder and representative of the Electronic Health Record Vendor Association (HIMSS EHRA). She has served on a variety of industry workgroups, including HIMSS HL7 & IHE Interoperability Collaborative, and HIMSS Katrina Phoenix. For HIMSS, she developed and managed National Health IT Week (2006-2011). Julia served as VP Marketing for A4 Health Systems, building brand recognition to third in the American EHR category, prior to the company's sale for $272M. In Canada, Julia served as Senior VP, Marketing and Strategy for patient flow technology company, Medworxx, Inc. Julia holds a PhD in Communications Theory from the University of Toronto, specializing in post-structuralism and postmodern cultural and communications theory. Julia serves on the Board of Regents for Victoria University, University of Toronto.