the CTN
CIHR Canadian
HIV Trials Network

le Réseau
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pour les essais VIH des IRSC

CHÉOS
Centre for Health Evaluation
& Outcome Sciences

Job title:	Mathematical Modeler
Department:	Centre for Health Evaluation and Outcome Sciences (CHÉOS) at the Providence Health Care Research Institute (PHCRI)
Location:	St. Paul's Hospital, Vancouver, BC
Salary:	Salary commensurate with experience; competitive benefits package including four weeks of paid vacation to start, extended health and dental plans, and membership in the Municipal Pension Plan
Desired Start Date:	As soon as possible
Full/Part-time:	Full-time (37.5 hours/week)
Position status:	This is an on-going, regular-status Providence Health Care position (union-excluded); however, all research positions are dependent on grant funding
Term:	The initial term of this role is expected to be at least 1 year in duration and renewable, should grant funding continue to be available
Application Closing Date:	Open until filled
How to apply:	Interested candidates should email their resume with cover letter and writing sample (up to two pages) to hr@cheos.ubc.ca

Equity and diversity are essential to research and academic excellence. An open and diverse community fosters the inclusion of voices that have been underrepresented or discouraged. We encourage applications from members of groups that have been marginalized on any grounds enumerated under the B.C. Human Rights Code, including sex, sexual orientation, gender identity or expression, racialization, disability, political belief, religion, marital or family status, age, and/or a person who identifies as First Nation, Metis, Inuit, or Indigenous. CHÉOS/CTN welcomes a broad range of applicants, and accommodations are available for candidates taking part in all aspects of the selection process.

Job Summary

Under the supervision of Dr. Bohdan Nosyk, the Mathematical Modeler will assist the team lead and other team members in simulation modeling health research projects. Specific tasks include model specification, development and validation, preparation of manuscripts, presenting research findings at conferences, and other research-related activities. Dr. Nosyk leads a multidisciplinary team of statisticians, health economists, and public health researchers engaged in an international portfolio of leading-edge health economic and health services research projects focused on HIV/AIDS and substance use disorders. This team offers outstanding research opportunities, international

collaborations, access to world-class linked administrative databases, a breadth of methodological skills, and a focus on improving health outcomes for marginalized populations. This position additionally offers potential for publication and other professional development opportunities.

The Mathematical Modeler works closely with CHÉOS/CTN staff including physicians, epidemiologists, research nurses, research coordinators and assistants, data managers, biostatisticians, graduate students, and fellows.

Located at St. Paul's Hospital, CHÉOS is an interdisciplinary collective founded to pursue excellence in health outcomes research. In addition to conducting its own research, the Centre's other primary function is to offer methodological expertise to other researchers, including assistance with study design, statistics, health economics, data management, and grant facilitation for both health outcomes research and clinical trials. The Centre consists of over 75 faculty members and 130-150 staff and research personnel.

The CTN is an innovative partnership of clinical investigators, physicians, nurses, people living with HIV/AIDS, pharmaceutical manufacturers, and others that facilitate HIV clinical trials of the highest scientific and ethical standards. Established in 1990 as a cornerstone of the federal AIDS Strategy, the CTN is funded by the Canadian Institutes of Health Research (CIHR), and jointly sponsored by the University of British Columbia (UBC) and St. Paul's Hospital (Providence Health Care) in Vancouver.

Work Performed

The successful applicant will have the opportunity to be involved in an array of high-impact studies evaluating the impact and value of local as well as international programs and policies in opioid use disorder treatment and risk mitigation, in addition to HIV/AIDS treatment and prevention strategies which promote health equity and support the 'Ending the HIV Epidemic in America' initiative.

- Responsibilities span the entire modeling life cycle: model specification, design, development, debugging, internal and external validation, implementation, documentation, code maintenance, and conduct of simulations to advance project objectives in the context of substance use and HIV/AIDS.
- Develop, test, and implement new models to advance project objectives.
- Perform parameter estimation using empirical data.
- Conduct one-way and probabilistic sensitivity analysis.
- Analyze model results and determine a course of action to resolve performance issues.
- Work collaboratively with an interdisciplinary team of health economists, statisticians, and other trainees to meet team and organizational goals.
- Achieve a high level of research productivity, including contributing to securing grant funding, and developing an independent research agenda.
- Support and lead the development of research proposals and grant applications.
- Prepare manuscripts that communicate project methods, results, and conclusions; present research at national and international conferences.
- There will be opportunities for the successful candidate to receive additional training in a range of research methods, including health economic evaluation, while contributing substantially to the development and execution of cutting-edge health economic research.
- Other related duties as may be assigned.

Supervision Received

Reports to Dr. Bohdan Nosyk, CHÉOS Scientist.

Supervision Given

This position does not include supervision of other staff.

Consequence of Error/Judgement

Tact, diplomacy, and a high degree of judgement and initiative are required to conduct effective research analysis. Errors in the performance of the above-related duties could significantly impact the effectiveness of funding applications and the financial status of CHÉOS/CTN. Inappropriate judgment could result in loss of potential research and/or infrastructure opportunities or cause damage to the Centre/Network's reputations.

Working Conditions

The applicant will be working at CHÉOS/CTN located in St. Paul's Hospital and will be provided with appropriate workspace. Some flexibility for remote work arrangements (in line with PHC policy) may be provided. Travel to meetings and conferences may be required from time to time.

Qualifications

- Applicants should have a Master's or PhD in applied mathematics or a related quantitative discipline.
- Demonstrated experience designing testable mathematical models, simulation modeling, machine learning, parameter estimation.
- Strong quantitative skills and familiarity with cutting-edge statistical methods for parameter estimation.
- Ability to specify, design, develop, implement, and support projects that focus on simulation modeling.
- Strong background in computational methods, including applications using differential equations.
- Prior mathematical modeling experience in a health-related field is an asset.
- High proficiency in Microsoft Office, including Word, Excel, and PowerPoint.
- Strong quantitative skills (experience and proficiency using R, Python, SAS, STATA, or similar software package).
- Strong presentation skills (written communication and presentation of data).
- Theoretical knowledge in Epidemiology, Public Health, or related field.
- Database management and graphics capabilities.
- Deadline and detail-oriented.
- Ability to work independently and as part of a team.

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. ***We thank all applicants for their interest in this position. Only those selected for an interview will be contacted.***