**Canadian Organizations**
- Public Health Agency of Canada
- National Collaborating Centre for Infectious Diseases
- National Collaborating Centre for Aboriginal Health
- National Research Council Canada
- National Microbiology Laboratory
- Public Health Ontario
- BC Centre for Disease Control
- Cadham Provincial Laboratory
- Health Canada

**International Organizations**
- IDRC-CRC International Chair Programs
- North American Consortium
- African Continental and French Partnerships
- CDM-IICT-INMAS (India) Collaboration
- CDM-ICMC (Brazil) Collaborative Research
- CDM-CDC (China) Collaborative Research
- Mathematical, Computational & Modelling Sciences Centre
- The Utrecht Centre for Infection Dynamics

**Core Members**
- Jianhong Wu (Director)
- Jane Heffernan
- Neal Madras
- Seyed Moghadas
- Huaiping Zhu

**Supporting Organizations**
- Canadian Institutes of Health Research
- Natural Sciences and Engineering Research Council of Canada
- Mathematics of Information Technology and Complex Systems
- Ontario Ministry of Research and Innovation
- Social Sciences and Humanities Research Council
- Canadian Foundation for Innovation
- GEOmatics for Informed Decisions
- mprime

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MANDATES OF THE CENTRE

- Integrate diverse expertise into a unified structure for research, training, and interdisciplinary collaboration in disease modelling
- Represent a focal point for maintaining a critical mass of expertise in areas of strategic importance to global public health
- Emerge as a world leader in the application of mathematical sciences to practical aspects of public health research

RESEARCH THEMES

Human Threats
- Pandemic and Avian Influenza
- Sexually Transmitted Diseases
- Tuberculosis
- Hepatitis B
- Hepatitis C
- Neglected Tropical Diseases
- Vector-Borne and Water-Borne Diseases
- Zoonotic Diseases

Methodologies
- Developing quantitative and agent-based modelling computational systems to integrate modelling and surveillance in the real-time event of emerging diseases
- Implementing policy decision-support tools for evaluating the synergistic effects of different public health intervention strategies using quantitative methods
- Constructing modelling frameworks for bridging within-host and between-host pathogen dynamics
- Creating structures for integrating climate change and environmental factors into frameworks for improving human health

KNOWLEDGE TRANSLATION & NETWORKING ACTIVITIES

- The centre holds workshops and brainstorming meetings with collaborators to disseminate research findings and identify emerging issues that should be targeted for urgent research
- Summer schools are held with the aim of training highly qualified personnel in the field of disease modelling and its applications to the management of persistent and emerging infectious diseases
- Thematic programs aim to identify important interdisciplinary research projects that require the development of cutting-edge modelling tools and methodologies
- The centre holds weekly seminars in which students and postdoctoral fellows share their ideas and research findings with peers
- Distinguished lectures provide an overview of the interdisciplinary research that involves institutional collaboration in disease modelling with novel applications to human health

TRAINING FUTURE LEADERS

Building on the depth and breadth of existing expertise, research capacity, and past training achievements, the Centre for Disease Modelling (CDM) implements innovative training programs in the "Mathematics of Infectious Diseases” that expose trainees to both theoretical frameworks in disease modelling and problem-driven applied research leading to novel applications in infectious disease management. The centre provides an enriched environment for trainees to develop professional skills, to apply a wide range of analytical tools to address important public health issues, and to appreciate the value of interdisciplinary collaboration. The internship opportunities, interdisciplinary curricula, international exchange, along with a series of training and research activities (e.g., summer schools, workshops, and thematic programs) will ultimately lead to a new generation of researchers consisting of highly-motivated, self-driven individuals with the capacity to think, contribute and thrive both independently and collaboratively.

Training programs at CDM are enriched by research projects that lead to the development of novel methods in mathematical modelling to explore fundamental knowledge. These include:
- Modelling transmission dynamics and control of infectious diseases in high-risk and vulnerable population groups
- Predicting spatiotemporal spread and evolution of zoonotic diseases with environmental changes
- Incorporating a wide spectrum of human behaviour and health economics into disease models
- Integrating surveillance and modelling for evidence-based decision-making in public health
- Evaluating the emergence and spread of antimicrobial drug resistance
- Integrating within-host micro-dynamics with between-host macro-dynamics

At the CDM, we train future generation of leaders to acquire professional skills and experiences to carry out world-class research, and link fundamental research to applications.