

Effective for residents who enter training on or after July 1, 2023.

DEFINITION

Clinician investigators are specialist physicians in active clinical practice who devote substantial professional effort to health research.

CLINICIAN INVESTIGATOR PRACTICE

Clinician investigators conduct research to enhance understanding of health and disease, and to develop new or improved methods of prevention, diagnosis, and treatment. This includes investigations in laboratories and with research participants, and studies of populations and of health service and public health policies and programs. It may also involve topics in bioethics, economics, education, information sciences, management, and social sciences, all as applied to human health and disease.

Clinician investigators identify areas for exploration relevant to their clinical discipline and develop questions suitable for scholarly investigation. They design research studies, obtain funding and ethics approval, and conduct studies. They analyze study findings, integrate those findings with the literature, and draw conclusions. They disseminate their findings to the scientific community and other audiences and translate the outcomes of their research into clinical care. The scholarly activities performed by clinician investigators integrate with and inform their clinical care, teaching, and administrative work.

Clinician investigators provide service and leadership to the health research enterprise. They participate in and lead the administration of research teams and organizations. They mentor, teach, and supervise trainees. They contribute to peer-review activities for funding agencies, scientific publications, and professional organizations.

Clinician investigators work in university departments, in research institutes affiliated with academic health centres, in the private sector, and in government agencies.

ELIGIBILITY REQUIREMENTS TO BEGIN TRAINING

Royal College certification in any specialty

OR

Eligibility for the Royal College examination in any specialty

OR

Registration in a Royal College-accredited residency program in any specialty (see requirements for these qualifications)

ELIGIBILITY REQUIREMENTS FOR ATTESTATION

All candidates must be Royal College certified in their primary specialty in order to be eligible for attestation in the Clinician Investigator Program.

CLINICIAN INVESTIGATOR COMPETENCIES

Medical Expert

Definition:

As *Medical Experts*, clinician investigators integrate all of the CanMEDS Roles, applying medical knowledge, clinical and research skills, and professional values in their provision of high-quality clinical care and health research.

Key and Enabling Competencies: Clinician investigators are able to...

1. Practise medicine within their defined scope of practice and expertise

- 1.1. Demonstrate a commitment to high-quality care of their patients and high-quality health research
- 1.2. Integrate the CanMEDS Intrinsic Roles into their practice
- 1.3. Apply knowledge relevant to their discipline and their research

Organization of health research in Canada

- 1.3.1. Legislation, regulations, and policies related to the conduct of research
- 1.3.2. Research ethics frameworks and requirements and processes for research ethics approval, including protection of marginalized populations and subjects
- 1.3.3. Legislation, regulations, and policies relating to data/information collection, use, retention, and disclosure
- 1.3.4. Research funding opportunities and requirements and processes for application
- 1.3.5. Funding support services available and requirements for access

Scholarly investigation

- 1.3.6. Study design options and types
- 1.3.7. Analytic methods: quantitative, qualitative, and mixed methods
- 1.3.8. Database development and data storage and maintenance
- 1.3.9. Project management and implementation

Research dissemination and knowledge translation

- 1.3.10. Manuscript submission and revision processes
- 1.3.11. Processes of peer review publication
- 1.3.12. Knowledge translation (KT) activities, including integrated KT
- 1.3.13. Principle of intellectual property and its protection
- 1.3.14. Open science principles
- 1.3.15. Role of news and social media in disseminating research findings

1.4. Perform scholarly work

1.5. Carry out professional duties in the face of multiple competing demands

- 1.5.1. Balance the demands of patient care responsibilities with the demands of a research career

1.6. Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice and in research

- 1.6.1. Recognize when studies are causing harm and understand the rules for terminating a trial

Communicator

Definition:

As *Communicators*, clinician investigators form relationships with research participants that facilitate the gathering and sharing of essential information for the conduct of health research.

Key and Enabling Competencies: Clinician investigators are able to...

1. Share information about participation in a research study, including risks, benefits, and alternatives to participation

- 1.1. Solicit and answer questions from the potential participant
- 1.2. Obtain and document informed consent, explaining the risks and benefits of, and the rationale for, participation in a study

- 1.3. Share information with participants about the outcome or findings of the research study

Collaborator

Definition:

As *Collaborators*, clinician investigators work effectively with others to conduct high-quality research.

Key and Enabling Competencies: Clinician investigators are able to...

1. Work effectively with physicians, scientists, and other colleagues in the health-care professions and health research

- 1.1. Identify collaborators with the skills and resources needed to carry out a study
- 1.2. Form a research team, including staff, collaborators, and mentors
- 1.3. Consult with statisticians, methodologists, and other experts as applicable
- 1.4. Collaborate with colleagues, technicians, and students in the conduct of a research study
- 1.5. Build and maintain partnerships and networks

2. Work with physicians, scientists, and other colleagues in the health care professions and health research to promote understanding, manage differences, and resolve conflicts

- 2.1. Show respect toward collaborators
- 2.2. Implement strategies to promote understanding, manage differences, and resolve conflict in a manner that supports a collaborative culture

Leader

Definition:

As *Leaders*, clinician investigators engage with others to contribute to a high-quality health care system supported by health research and take responsibility for the delivery of excellent research care through their activities as clinicians, administrators, scholars, and teachers.

Key and Enabling Competencies: Clinician investigators are able to...

1. Contribute to the improvement of health care delivery

- 1.1. Apply scholarly investigative methods to contribute to improving patient care

2. Engage in the stewardship of health research resources

3. Demonstrate leadership in research

- 3.1. Manage and/or lead research teams and projects, engaging with the larger research enterprise
- 3.2. Engage in quality management of research performed by their team
- 3.3. Plan and lead team meetings
- 3.4. Perform critical analysis of methodology, relevance, and novelty for manuscripts, journal articles, and/or grant review processes
- 3.5. Provide constructive feedback in peer review activities
- 3.6. Demonstrate leadership skills to enhance health research

4. Manage career planning, finances, and health human resources in research activities

- 4.1. Set priorities and manage time to integrate practice and personal life
- 4.2. Manage research projects and resources
 - 4.2.1. Identify the expertise and human resources required
 - 4.2.2. Manage project or thesis timelines and monitor costs
- 4.3. Identify and build a network of mentors
- 4.4. Implement processes to ensure research skills and career development

Health Advocate

Definition:

As *Health Advocates*, clinician investigators contribute their expertise and influence as they work with communities or patient populations to improve health and health research. They work with those they serve to determine and understand needs, speak on behalf of others when required, and support the mobilization of resources to effect change.

Key and Enabling Competencies: Clinician investigators are able to...

1. Respond to the needs of the communities or populations they serve by conducting health research in a socially accountable manner

- 1.1. Lead or contribute to research initiatives that target health inequities or disparities

- 1.1.1. Advocate for societal funding for health research, including identification of research priorities, improvement of research safety, and funding for knowledge translation
- 1.2. Incorporate the patient and community voice and priorities into the development and conduct of research initiatives

Scholar

Definition:

As *Scholars*, clinician investigators demonstrate a lifelong commitment to excellence in practice through continuous learning, and by teaching others, evaluating evidence, and contributing to the creation, dissemination, application, and translation of new knowledge and practices.

Key and Enabling Competencies: Clinician investigators are able to...

1. Engage in the continuous enhancement of their professional activities through ongoing learning

- 1.1. Actively seek opportunities and challenges for personal learning and growth

2. Teach students, residents, the public, and other health care professionals

- 2.1. Mentor, teach, and supervise trainees

3. Integrate best available evidence into practice

- 3.1. Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters and generate focused questions to address them
 - 3.1.1. Identify, articulate, and prioritize unmet clinical and population health needs
 - 3.1.2. Translate clinical and population health needs into research questions
- 3.2. Critically evaluate the integrity, reliability, and applicability of health research and literature
 - 3.2.1. Perform literature searches
 - 3.2.2. Perform critical appraisal of relevant literature/evidence
 - 3.2.3. Describe gaps in the literature, including content, methods, and applicability
- 3.3. Integrate evidence into decision-making in their practice

4. Contribute to the creation and dissemination of knowledge and practices applicable to health

- 4.1. Demonstrate an understanding of the scientific principles of research and scholarly inquiry and the role of research evidence in promoting healthy people and communities and in health care
- 4.2. Identify ethical principles for research and incorporate them into obtaining informed consent, considering potential harms and benefits, and vulnerable populations
 - 4.2.1. Recognize and respond to ethical, privacy, and safety issues encountered in the conduct of scholarly activities
- 4.3. Contribute to the work of a research program
 - 4.3.1. Work effectively within a research team
- 4.4. Pose questions amenable to scholarly investigation and select appropriate methods to address them
 - 4.4.1. Identify important questions to advance the field
 - 4.4.2. Explore what is known about the study question
 - 4.4.3. Develop a research hypothesis, question, or aim appropriate for investigation within the context of the existing evidence base
 - 4.4.4. Synthesize information to refine the research hypothesis or question
 - 4.4.5. Select relevant funding opportunities
 - 4.4.6. Obtain ethics approval
 - 4.4.7. Conduct a research study
 - 4.4.7.1. Select an appropriate study design
 - 4.4.7.2. Create a detailed and feasible study protocol
 - 4.4.7.3. Develop a budget for the study protocol
 - 4.4.7.4. Create an analysis plan
 - 4.4.7.5. Collect, use, disclose, and retain data for a research study
 - 4.4.7.6. Select and use appropriate methods for data analyses and syntheses
 - 4.4.7.7. Identify challenges or limitations in the study and its findings and how these may impact the interpretation and generalization of the study findings
 - 4.4.7.8. Integrate findings with information from previous studies and the literature
 - 4.4.7.9. Draw conclusions from research findings
 - 4.4.7.10. Propose next steps in answering the research question or for further research

- 4.5. Summarize and communicate to professional and lay audiences, including research participants and patients and their families, the findings of relevant research and scholarly inquiry
 - 4.5.1. Disseminate the findings of a research study
 - 4.5.1.1. Summarize results in text, tabular, and graphic forms
 - 4.5.1.2. Summarize and synthesize findings
 - 4.5.1.3. Prepare abstracts, including visual abstracts
 - 4.5.1.4. Prepare and submit manuscripts for publication
 - 4.5.2. Communicate research to a variety of audiences, including research subjects, the scientific community, the media and those on social media
 - 4.5.2.1. Define key messages
 - 4.5.2.2. Adapt to the target audience and setting
 - 4.5.2.2.1. Use plain language to share results in a manner that enhances understanding and is accessible to patients and the general public
 - 4.5.2.3. Select and use appropriate visual aids
 - 4.5.2.4. Respond to questions and comments
- 4.6. Translate the findings or outcomes of research into clinical care

Professional

Definition:

As *Professionals*, clinician investigators are committed to the health and well-being of individual patients and society through ethical clinical and research practice, high personal standards of behaviour, accountability to the profession and society, physician-led regulation, and maintenance of personal health.

Key and Enabling Competencies: Clinician investigators are able to...

1. Demonstrate a commitment to patients by applying best practices and adhering to high ethical standards

- 1.1. Exhibit appropriate professional behaviours and relationships in all aspects of research, demonstrating honesty, integrity, humility, commitment, compassion, respect, altruism, respect for diversity, and maintenance of confidentiality
- 1.2. Demonstrate a commitment to excellence in all aspects of research
- 1.3. Recognize and respond to ethical issues encountered in research
- 1.4. Recognize and manage conflicts of interest

- 1.5. Exhibit professional behaviours in the use of technology-enabled communication
- 2. Demonstrate a commitment to society by recognizing and responding to societal expectations in health care and health research**
 - 2.1. Demonstrate accountability to patients, society, and the profession by responding to societal expectations of physicians
 - 2.1.1. Demonstrate commitment to equity, diversity, inclusivity, and anti-oppression practices
 - 2.2. Demonstrate a commitment to patient safety and quality improvement
- 3. Demonstrate a commitment to the profession by adhering to standards and participating in physician-led regulation**
 - 3.1. Fulfil and adhere to professional and ethical codes, standards of practice, and laws governing practice
 - 3.1.1. Adhere to legislation, regulations, and policies for the conduct of research and protection of privacy
 - 3.2. Recognize and respond to unprofessional and unethical behaviours in physicians and other colleagues in the health care professions and in health research
 - 3.3. Participate in peer assessment and standard setting
 - 3.3.1. Participate in peer review
- 4. Demonstrate a commitment to physician health and well-being for optimal patient care and research**
 - 4.1. Exhibit self-awareness and manage influences on personal well-being and professional performance
 - 4.1.1. Demonstrate awareness of one's own assumptions, values, beliefs, principles, strengths, and limitations
 - 4.2. Manage personal and professional demands for a sustainable practice throughout the physician life cycle
 - 4.2.1. Promote a safe diverse and inclusive working atmosphere
 - 4.2.2. Monitor progress and well-being of individual team members
 - 4.2.3. Manage competing demands: clinical, research, and personal
 - 4.3. Promote a culture that recognizes, supports, and responds effectively to colleagues in need

CLINICIAN INVESTIGATOR COMPETENCIES (2023)

This document is to be reviewed by the Clinician Investigator Program Advisory Committee by January 31, 2026.

Created –Clinician Investigator Program Advisory Committee – November 2022
Approval – Specialty Standards Review Committee – December 2022