

Physician Careers in Clinical Pharmacology and Toxicology in Canada: Frequently Asked Questions

What is Clinical Pharmacology and Toxicology (CPT)?

Clinical Pharmacology involves the basic science of pharmacology with added focus on the application of pharmacological principles and methods in the real world. It is based on in-depth knowledge of human pharmacology, pharmacokinetics, pharmacogenomics, toxicology and familiarity with how to assess the strengths and limitations of randomized trials of pharmaceutical products.

Toxicology is a field of medicine dedicated to the evaluation and treatment of poisoned and envenomated patients. This also includes adverse health effects of medications, occupational, natural and environmental toxins, and biological agents.

What does working in CPT look like?

CPT training prepares you to work in a variety of settings. Most CPT physicians work in one or more of these areas:

- Treating acutely poisoned patients in Emergency Departments and in-patient units (e.g. Critical Care, Internal Medicine)
- Evaluating the health impact from exposure to drugs and toxic substances in the home or workplace in outpatient clinics
- Providing expert evaluation and recommendations on pharmacodynamics with regards to medication non-response, polypharmacy, and drug-drug interactions
- Providing medical direction for health professionals, personal responders and the general public in provincial poison centers
- Teaching and research in academic institutions
- Contributing to pharmaceutical research and development, product safety, and regulatory compliance
- Providing expertise to all levels of government, from local health departments to federal entities
- Aiding in the design, conduction and interpretation of diagnostic tests and forensic studies for clinical and forensic laboratories
- Providing medical-legal consultation to lawyers on CPT-related issues (e.g. ethanol effects, interpreting postmortem drug concentrations, drug-induced psychosis)

Is CPT for me?

Here are some tips to explore the specialty:

- Spend time with physicians working in this area. Both Undergraduate and Postgraduate Medical Electives in CPT are available across Canada.
- Get involved with CPT research to learn more about the types of research questions that a CPT physician studies.
- Join a professional society. For example, the American College of Medical Toxicology (ACMT) represents physician toxicologists and has very reduced rates for students and residents.
- Attend specialty meetings such as the North American Congress of Clinical Toxicology (NACCT), ACMT spring meeting, or the Canadian Society of Pharmacology and Therapeutics (CSPT). You will learn more about the specialty and network with CPT physicians who work in all settings.

How do I become a CPT physician in Canada?

1. Medical School and base residency

Complete medical school and residency training in one of five Royal College-approved base residencies for entry into CPT: Emergency Medicine, Internal Medicine, Pediatrics, Psychiatry, and Anesthesia. Depending on the base specialty, the resident may be able to receive credit for one year of both CPT and the base residency.

2. CPT subspecialty residency

To become certified in CPT in Canada through the Royal College, physicians must complete a two-year subspecialty residency in CPT and pass the qualifying exam. There are three active residency programs in Canada: the [University of Calgary](#), [University of Toronto](#), and [Western University](#). All participate in the [CaRMS Medicine Subspecialty Match](#).

Fellowship programs are typically small and diverse in what they offer. Although all accredited programs must adhere to a core curriculum, some programs place emphasis on acute/intensive care toxicology, some on personalized medicine and pharmacogenomics, and others on research depending on their areas of expertise.

Where can I go for more information?

1. Royal College of Physicians and Surgeons of Canada: <https://www.royalcollege.ca/rcsite/ibd-search-e> (and select “Clinical Pharmacology and Toxicology” from the subspecialty drop down list)
2. CSPT: <https://pharmacologycanada.org/>
3. American College of Medical Toxicology: <https://www.acmt.net/>
4. American Academy of Clinical Toxicology: <https://www.clintox.org/>
5. Toxicology Investigators Consortium (ToxIC): <https://www.toxicregistry.org/>