



Alberta Health Services

Section of Clinical Pharmacology and Toxicology

Strategic Plan 2021-2025

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Message from the Section Chief

On behalf of the Alberta Health Services (AHS) Section of Clinical Pharmacology and Toxicology (CPT), it is my pleasure to share our Strategic Plan for the years 2021-2025.

The plan represents the culmination of months of effort and dedication on the part of many. Faculty, staff, learners and patient advisors contributed to this plan by sharing their aspirations for the Section. We are very grateful for the excellent participation and contributions from such a broad array of stakeholders.

To complete our plan, we utilized the AHS 5-step Strategic Planning approach (Who are we, where are we, what are we trying to achieve, how are we going to do it, how will we know when we've done it) along with user satisfaction surveys, SWOT analyses, and SMART goals.

Our previous strategic plan began in 2016 and ran through 2019. Many features of that plan remain relevant today, including our commitments to education, research, and service to society.

Our plan has been designed to be aspirational. We have charted a vision of what is important for the long-term success of the Section. The plan that we present here moves us forward in several key ways.

The first is through deliberately aligning ourselves more closely with both the AHS and the Cumming School of Medicine's Strategic Plans, including the AHS 'Quadruple Aim'.

The second is through enhancing our reputation as educators by expanding our educational mandate into additional areas such as undergraduate medical education.

The third is advancing our research mission. This plan builds around the research expertise of the Section to position us as a world leader in CPT research, including precision medicine, medication safety, and care of the CPT patient.

Finally, our role as patient care providers offers the opportunity to expand our care of CPT patients across the entire continuum of outpatient and inpatient care.

Thanks for reading our plan. We look forward to working with you.

Mark Yarema, MD FRCPC
Section Chief
Clinical Pharmacology and Toxicology
Alberta Health Services
Clinical Professor
Department of Emergency Medicine
University of Calgary

Introduction

Clinical Pharmacology translates the basic science of Pharmacology into clinical science of Therapeutics, focusing on the application of pharmacological principles and methods in the real world. It is based on in-depth knowledge of human pharmacology, pharmacokinetics, pharmacogenomics and toxicology.

Toxicology is the study of adverse effects on living organisms that may result from exposure to natural or human-made substances, including chemicals, physical agents, and energy. It deals with the description of the toxic effects, explanation of the mechanisms of action, and prediction of the degree of the risk posed to organisms exposed to a toxicant.

The Alberta Health Services Section of Clinical Pharmacology and Toxicology (CPT) was created on April 14, 2016 after unanimous approval of our proposal by the AHS-Calgary Zone Medical Advisory Committee. With this approval it set the stage for the creation of a centre of excellence in CPT within Alberta.

We are a diverse group of clinicians, educators, researchers, scientists and leaders. Our Section amalgamates the clinical, educational, and research expertise of our people and serves as a world-class training environment for those wishing to pursue CPT as a career.

We are fortunate to have a close affiliation with the Poison and Drug Information Service (PADIS), one of the five poison centres in Canada. PADIS provides service to the province of Alberta, Saskatchewan and the Northwest Territories. Medical residents from multiple programs spend time at PADIS to learn more about the diagnosis and management of poisoned patients. We offer both inpatient and outpatient consultations on the diagnosis and management of poisoned patients. In addition, several section members work at PADIS.

In 2017 we were fortunate to receive approval for a Royal College subspecialty residency training program in CPT, which is currently housed at PADIS. Calgary is now home to the fourth Royal College CPT residency in the country and the first in Western Canada. Entry programs for our CPT residency include Emergency Medicine, Internal Medicine, Pediatrics, Psychiatry and Anesthesia.

Research expertise in our Section includes diverse areas such as pharmacogenomics, acute and intensive care toxicology, adverse drug events, and cardiovascular medicine (hypertension, anticoagulation and amiodarone kinetics). Section members have also been front and centre in helping respond to Canada's opioid crisis, both in assisting with acute care management of poisoned patients and also with harm reduction efforts such as the Take Home Naloxone program.

This document summarizes our plan for the next five years, including our goals, short and long-term objectives, and metrics.

Section of Clinical Pharmacology and Toxicology (CPT) Purpose and Goals

Purpose

The AHS Section of Clinical Pharmacology and Toxicology helps create healthy people, healthy lifestyles and healthy communities. We promote the safe, optimal and rational use of medications, manage and prevent exposures to poisons and chemicals, and support a harm reduction approach in people affected by substance use.

Goals

AHS Goal 1: Improve patients' and families' experiences.

CPT Goal 1: Provide quality, optimized, evidence-based care for all patients who come into contact with drugs and chemicals that pose a threat to their well-being.

AHS Goal 2: Improve patient and population health outcomes.

CPT Goal 2: Position the Section as a global leader in research related to the discipline of Clinical Pharmacology and Toxicology.

AHS Goal 3: Improve the experience and safety of our people.

CPT Goal 3: Enrich the education, training and knowledge translation experience for faculty, staff, students, fellows, residents and the general public as it relates to the discipline of Clinical Pharmacology and Toxicology.

AHS Goal 4: Improve financial health and value for money.

CPT Goal 4: Establish the Section as a resource to help prevent the morbidity, mortality and costs associated with adverse drug events and reduce unnecessary use of medications.

CPT Goal 1:

Provide quality, optimized, evidence-based care for all patients who come into contact with drugs and chemicals that pose a threat to their well-being.

Objectives:

1. We will recruit physicians trained in CPT or Medical Toxicology to staff the Clinical Pharmacology (CP) and the PADIS Medical Toxicology consult services.
2. We will expand the Clinical Pharmacology physician consultation service to include community-based physicians by joining the Calgary Primary Care Network Specialist Link and Alberta Netcare e-referral services.
3. We will expand the discipline of Clinical Pharmacology into the outpatient clinic setting to include patients under 65 years of age referred for follow up for adverse drug events, polypharmacy and deprescribing advice.

Annual metrics:

1. Number of in-person Clinical Pharmacology consults in Calgary Zone hospitals.
2. Number of Clinical Pharmacology telephone consults in Calgary Zone hospitals.
3. Number of Clinical Pharmacology telephone consults from Specialist Link.
4. Number of Clinical Pharmacology e-referral consults from Alberta Netcare.
5. Number of physicians on staff for PADIS and Clinical Pharmacology consult services.
6. Number of in-person and virtual consults in the PADIS Medical Toxicology Clinic.
7. Number of in-person and virtual consults for patients under the age of 65 referred for adverse drug events, polypharmacy and deprescribing advice.

CPT Goal 2:

Position the Section as a global leader in research related to the discipline of Clinical Pharmacology and Toxicology.

Objectives:

1. We will create four overarching research themes for the Section, under which all CPT-related research activity is welcomed and supported:
 - a. Precision Medicine
 - Precision medicine takes into account individual variability in genes, environment, and lifestyle for each person.
 - Pharmacogenomics is the study of how genes affect a patient's response to drugs. Pharmacogenomic testing seeks to identify patients who are at risk for clinical significant differences in their genome that can result in altered pharmacokinetic, pharmacodynamic, or immune responses to a medication.
 - Specific research areas: Pharmacogenomics
 - b. Care of the CPT Patient
 - Our unique relationship with PADIS allows for collaborations on the diagnosis and management of acute and chronic poisonings.
 - PADIS receives over 50,000 calls a year from residents of Alberta, Saskatchewan and the Northwest Territories, and well over 1 million calls since its inception in 1986.
 - The patient data from telephone calls and bedside consultations at both Canadian and US Poison Centres serves as a rich opportunity for research into the epidemiology, diagnosis and management of the poisoned patient.
 - Specific research areas: Acetaminophen, Toxic alcohols, Drugs of abuse, Antidepressants, Poison Centres
 - c. Medication Safety and Adverse Drug Events
 - In Canada, adverse drug events to outpatient medications cause over two million emergency department visits, 700,000 admissions, and \$1 billion in healthcare costs annually.
 - Specific research areas: Recognition, reporting and prevention of adverse drug events
 - d. Quality Improvement
 - Quality Improvement (QI) is a science that is built upon testing small changes and quickly learning from the results observed.
 - Changes in normal operations, either as a deliberate experiment or externally imposed, have the ability to teach us about our systems, our teams and ourselves.
 - Specific areas: Utilization and cost of antidotes, Adherence to Poison Centre guidelines, Choosing Wisely

2. We will strengthen relationships within the University of Calgary, specifically, the Cumming School of Medicine (CSoM) research institutes (Big Data initiative in the O'Brien IPH), the Physician Learning Program, and the University of Calgary Precision Medicine Initiative.
3. We will join the University of British Columbia's ActionADE research initiative to improve recognition, diagnosis, management and reporting of adverse drug events.
4. We will mentor residents and medical students interested in CPT research.
5. We will collaborate with the University of Alberta's Precision Medicine Initiative.
6. We will participate in industry-sponsored research, where appropriate.

Annual metrics:

1. Number of Section members who are University of Calgary research institute members.
2. Number of research projects involving a Section member.
3. Number of quality improvement projects involving a Section member.
4. Number of internal and external grant reviews performed by Section members.
5. Number of publications involving Section members.
6. Amount of research funding awarded to Section members.
7. Number of residents and students mentored by Section members.
8. Number of publications with CPT residents as authors.
9. Number of research mentorship initiatives attended (e.g. annual University of Calgary Internal Medicine research 'speed dating' event).
10. Number of abstracts submitted and accepted by Section members and CPT residents.
11. Number of scientific research talks (local, national, and international) given per year by Section members and CPT residents.

12. Number of external Research Days participated in by Section Members and CPT residents (e.g. Emergency Medicine, Pathology and Laboratory Medicine, HBI, ACHRI, O'Brien).

CPT Goal 3:

Enrich the education, training and knowledge translation experience for faculty, staff, students, fellows, residents and the general public as it relates to the discipline of Clinical Pharmacology and Toxicology.

Objectives:

1. We will contribute to the University of Calgary Undergraduate Medical Education (UME) Clinical Pharmacology and Toxicology series of lectures on an ongoing basis.
2. We will assist the University of Calgary UME department in the creation of a comprehensive undergraduate pharmacology curriculum.
3. We will contribute to the University of Calgary Postgraduate Medical Education Clinical Pharmacology and Toxicology series of lectures on an ongoing basis.
4. We will contribute to the University of Calgary Faculty of Graduate Studies Precision Health Program series of lectures on an ongoing basis.
5. We will ensure that the Royal College CPT residency entry programs (Emergency Medicine, Internal Medicine, Pediatrics, Psychiatry, and Anesthesia) are aware of the Section of CPT, and strengthen our relationships with these programs.
6. We will ensure that Section members contribute to the planning and hosting of the triennial PADIS conference.
7. We will implement the new Royal College Competency by Design (CBD) educational initiative for CPT residents in July 2021.
8. We will ensure that Section members are available for media inquiries.
9. We will establish the University of Calgary Clinical Pharmacology and Toxicology residency program as the go-to program for trainees interested in CPT as part of their career.
10. We will contribute to University of Calgary Continuing Medical Education & Professional Development (CME&PD) educational offerings on an ongoing basis.
11. We will contribute to national and international Continuing Medical Education & Professional Development educational offerings on an ongoing basis.

Annual metrics:

1. Medical student pharmacology satisfaction scores on annual Cumming School of Medicine exit survey.
2. Number of decks of 'Cards' developed for UME curriculum by Section members.
3. Number of plays and replays of CPT decks of Cards.
4. Number of CPT lectures given by Section members within each of the eight University of Calgary UME core courses.
5. Completion of '50 drugs to know before clerkship' document for University of Calgary UME curriculum by July 2021.
6. Number of CPT lectures given by Section members within the University of Calgary PGME curriculum.
7. Number of applicants to CPT residency program.
8. Number of CPT residents in program.
9. Number of CPT residents passing the Royal College certification exam.
10. Number of Section members teaching at CPT academic half day.
11. Number of Section members lecturing in University of Calgary graduate level courses in Individualized Therapy Medicine.
12. Number of residents and students rotating on PADIS and CP consult services (both from within and outside the University of Calgary).
13. Number of residents and students attending CPT outpatient clinics (e.g. Medical Toxicology)
14. Number of CPT presentations given by Calgary speakers at the monthly Canadian CPT case conference.
15. Number of CME&PD presentations given by Section members.
16. Number of presentations given by Section members to the general public.
17. Number of media interviews given by Section members.

CPT Goal 4:

Establish the Section as a resource to help prevent the morbidity, mortality and cost associated with adverse drug events, and reduce unnecessary use of medications.

Objectives:

1. We will join UBC's ActionADE initiative to improve recognition, diagnosis, management and reporting of adverse drug events (ADE's).
2. We will strengthen relationship with AHS Pharmacy Services, the Strategic Clinical Networks (SCN) and the Physician Learning Program (PLP) regarding provincial collection of ADE data.
3. We will work with Alberta Precision Laboratories and researchers at the University of Calgary and University of Alberta to develop and implement pharmacogenomic testing in Alberta.
4. We will strengthen our relationship with the University Of Calgary O'Brien Institute Of Public Health and the Institute of Health Economics to collaborate on provincial costs associated with adverse drug events and poisonings.

Metrics:

1. Number of pharmacogenomics consultations to the Clinical Pharmacology consult service.
2. Number of ADE reports through AHS Report on Learning and Safety system before and after initiation of pharmacogenomic testing in Alberta.
3. Number of dollars saved by calling PADIS or CP consult service (effect on length of stay, use of antidotes, and hospital visit versus staying at home).
4. Number of ADE hospitalizations in Alberta before and after initiation of pharmacogenomic testing in Alberta.
5. Annual cost of hospitalizations for ADE's before and after initiation of pharmacogenomic testing in Alberta.
6. Number of ADE referrals to Clinical Pharmacology consultation service.
7. Number and cost of prescriptions for select medications (e.g. antidepressants, antipsychotics) in Alberta before and after initiation of community physician educational initiatives with the SCN's and PLP.

Implementation

Our strategic plan presents a vision for the future of Clinical Pharmacology and Toxicology in Alberta.

Developed through consultation with faculty, trainees, staff, partners and stakeholders, this plan reflects with collective voice of the Section and paves a path to success.

Successful implementation of the plan will require full endorsement from leadership, partners and collaborators. Section members will take ownership of aspects of this plan, drive its activity, and ensure its ongoing progress.

The plan will be officially launched in January 2021. We will undertake a review in mid-2023 to assess progress and re-evaluate the goals and objectives.

On behalf of the Section, thanks for reading our Strategic Plan. For more information, please contact us.

Dr. Mark Yarema
Poison and Drug Information Service
Foothills Medical Centre
1403 – 29th St NW
Calgary, Alberta, Canada T2N 2T9
403-944-6900

<https://cumming.ucalgary.ca/departments/emergency-medicine/programs/clinical-pharmacology-and-toxicology>

Appendix: AHS Vision, Mission, Values, Strategies and Goals

Our Vision

Healthy Albertans.
Healthy Communities.
Together.

Our Mission

To provide a patient-focused, quality health system that is accessible and sustainable for all Albertans.

Our Values



Strategies

1. Patient first strategy
 - Strengthen AHS' culture and practices to ensure patients and families are at the centre of all healthcare activities, decisions and teams, enhancing their experience.
2. Our people strategy
 - Support each other through the creation of an engaged culture in which we all feel safe, healthy and valued, and can reach our full potential.
3. Clinical Health Research, Innovation & Analytics Strategy
 - Generate, share and use evidence in the delivery of care to improve patient and population health outcomes and to solve the complex challenges affecting the health system.
4. Information Management / Information Technology Strategy
 - Enable the efficient flow of health information between and among healthcare providers and teams inclusive of the patient, wherever the patient receives care.

Quadruple Aim Goals

1. Improve Patients' and Families' Experiences
2. Improve Patient and Population Health Outcomes
3. Improve the Experiences and Safety of Our People
4. Improve Financial Health and Value for our Money