



CMCC ASSESSMENT PLAN

Assessment and Evaluation Processes

February 2021

(replaces 2019 edition)

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CMCC Assessment Plan - 2021

PREFACE

Purpose of the Assessment Plan

Assessment is performed on a regular and consistent basis across CMCC. This Assessment Plan describes the levels and types of assessments used to determine institutional performance, achievement of student learning outcomes, and progress towards strategic goals, as well as the methods of review and evaluation of the assessment data and the resulting recommendations for improvement. In total, the various *assessments* performed at CMCC allow for an *evaluation* of the quality of its academic programs and of the institution's ability to fulfil its mission.

This is the third iteration of the CMCC Assessment Plan. Previous versions were from 2016 and 2019. It is intended to be a dynamic plan, with changes made as experience is gained in applying the plan, new evidence-based assessments are created, or changes made in reporting or evaluation methods.

This document is a compilation of the regularly occurring assessments and evaluations done at CMCC. It also includes some of the major formal reports that are compiled at CMCC for use by the institution or by external entities. There are certainly other smaller-scale or infrequent assessments that may be done upon occasion or for special purposes, which are not captured in this document. This document describes the processes of assessment and evaluations but is not a report on the outcomes of those processes. Outcomes are instead reported in committee minutes, reports to the President, reports to the Board of Governors and reports to external entities.

Updates in this Edition

The 2021 edition is a major revision to the previous plans. Both the original (2016) and the 2019 versions primarily focused on academic assessment. The 2021 edition fully incorporates assessment and evaluation at the institutional, curricular and programmatic levels and is re-organized to reflect those three levels. This new edition also more completely describes the frequency and timing of all major assessments, as well as the committees or administrators responsible for reviewing the assessment data and reports and directing implementation of any needed improvements. Finally, some information previously in the main part of the document has been moved into the appendices or was deleted to keep the main narrative more concise.

CMCC's [Academic Quality Assurance Framework](#) contains detailed descriptions of CMCC's divisional organization and committee structure and mandates. It is available on CMCC's website.

Organization of this Plan and Levels of Assessment

Three levels of assessment are described in this plan and described in detail in Parts III, IV and V. There is inherent overlap between these levels and some types of assessments could have been placed in more than one level. Where possible, the assessment was placed in the level with the greatest relevance.

Institutional Assessment and Evaluation (Part III)

This part deals with assessments that relate to overall institutional performance or which contain measurements of functions in several divisions or areas of activity at CMCC. Included in this category are assessments of non-academic functions or supports, the Library and assessment of clinic system quality assurance processes.

Curricular Assessment and Evaluation (Part IV)

This part deals with assessments that relate to specific parts of the academic program – such as courses, an academic term (Year), or faculty.

Programmatic Assessment and Evaluation (Part V)

This part deals with assessments of the outcomes as a whole of the academic program. These tend to deal with multiple years of the program.

Definitions

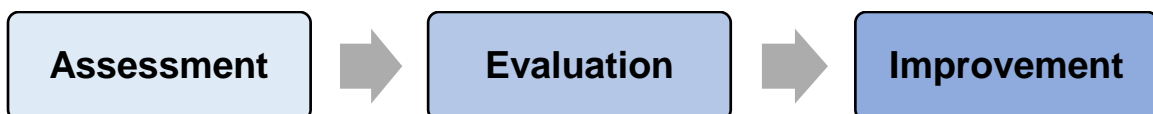
In the context of this Assessment Plan, the following simplified definitions are used:

Assessment:

Assessment is a broad term that includes the systematic measurement of student learning outcomes (e.g., the increase in knowledge and skills, and the development of attitudes and competencies) and the collection and analysis of data relating to non-academic institutional functions and processes.

Evaluation:

Evaluation is the process of using assessment data to make a judgement about the value, effectiveness or impact of the institution, academic programs, or curriculum. Evaluation should inform decision-making for the purposes of improvement.



Part I: Context and Background of the Assessment Plan

CMCC Vision

An academic institution recognized for creating leaders in spinal health.

CMCC Mission

Deliver world class chiropractic education, research, and patient care.

CMCC Core Values

- Communication
- Accountability
- Respect
- Excellence

CMCC Model of Care Statement

“Chiropractic is a primary contact health care profession with expert knowledge in spinal and musculoskeletal health, emphasizing differential diagnosis, patient centered care and research.” To ensure that the model of care statement is reflected in CMCC curriculum, exit competencies have been designed for the CMCC Doctor of Chiropractic undergraduate program as well as the Graduate Studies programs. These are also termed as graduate competencies and are listed in a later section.

Strategic Themes

CMCC’s Strategic Plan (2017-21) identifies six Strategic Themes of Excellence:

1. Excellence in support and service for students and employees
2. Excellence in teaching and learning
3. Excellence in research scholarship and innovation
4. Excellence in institutional leadership and management
5. Excellence in collaboration and communication
6. Excellence in clinical care

The achievement of our strategic goals and outcomes, and instructional effectiveness are described in our institutional Assessment Plan. The Assessment Plan is a living document that evolves in response to future Strategic Plans, curriculum changes, input from the Curriculum Committee, input from the Board Learning and Engagement Committee, input from the Program Advisory Committee, new evidence in higher education, items raised by stakeholders, and new initiatives undertaken by CMCC.

CMCC Core Functions

The Canadian Memorial Chiropractic College (CMCC) is a unique institution, founded in 1945 by chiropractors for chiropractors. Its founders envisioned a Canadian institution that would offer an excellent education, be a catalyst for developing a unified profession in Canada, conduct research to further the scientific basis of chiropractic, become the home for knowledge related to chiropractic and be the face of the Canadian profession to governments, third party payers and the general public. Core functions of CMCC include:

- Undergraduate Education: CMCC's undergraduate program consists of four years of comprehensive and rigorous education leading to a Doctor of Chiropractic (DC) degree. The evidence-based program is aligned with the CMCC Model of Care.
- Graduate Studies: CMCC provides opportunities for advanced post-graduate studies in Clinical Sciences, Diagnostic Imaging, and Sports Sciences. Completion of these programs provide learners with expert knowledge in the respective fields.
- Continuing Education: CMCC provides chiropractors (and others) with easy access to high-calibre programs developed to meet the evolving needs of professional practice. These include conferences and seminars to improve knowledge, skills and the quality of patient care.
- Patient Care: In Years I, II and III, students receive almost 3,000 hours of education and hands-on clinical training. In Year IV they apply this knowledge in a real clinic setting as chiropractic interns in CMCC's teaching clinics, under the supervision of clinical faculty. CMCC has a network of chiropractic teaching clinics throughout the Greater Toronto Area that provide care for approximately 7,000 patients in 80,000 visits each year. Many clinics are multi-disciplinary environments where chiropractors work together with a variety of health professionals. These community-based clinics give students and interns a broad clinical experience with diverse patient populations, including Toronto's inner-city and low-income communities, rural health populations, various ethnic/social patient groups, newcomers to Canada, adults and children who are behaviorally, mentally and physically challenged, and patients living with HIV/AIDS. Interns who have completed their quantitative requirements at CMCC have an opportunity to participate in the Community-Based Clinical Education Program (CBCEP). CBCEP provides interns with the opportunity to work alongside external field practitioners in their offices to gain experience in a private practice environment. The program currently operates in four provinces.
- Research: CMCC has one of the most innovative chiropractic research programs in North America. It improves the education of tomorrow's chiropractors and results in more effective delivery of patient care. CMCC researchers regularly work together with universities, government and industry to improve chiropractic education, patient health and health care policy. Four main research domains are pursued by CMCC researchers: mechanobiology, health resources, disability prevention and clinical trials both through virtual and physical academic centres. The scholarship of teaching and learning is also a focus in the academic domain.

CMCC Key Stakeholders

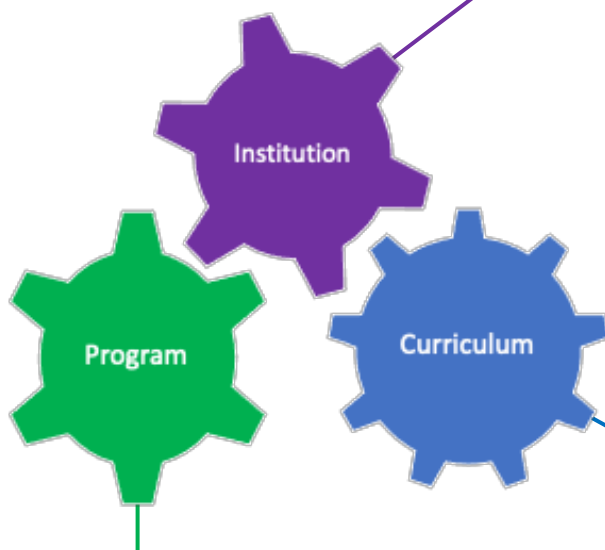
Due to its diverse mandate CMCC serves a broad group of stakeholders and the data collected and evaluated as part of the Assessment Plan is used to tailor reports to these stakeholders. Following are some of the core population groups that have a direct influence on CMCC's core functions:

- Applicants
- Students
- Faculty
- Staff and Administration
- CMCC Board of Governors
- Researchers
- Patients
- Clinical Placement Host Institutions
- Higher Education Strategic Partners
- Program Advisory Committee
- Alumni, Profession and Donors
- Accreditation and Regulatory Bodies
- National and Provincial Associations
- Ontario Ministries

Part II: Overview of Assessment and Evaluation

Interrelated Categories of Evaluation

CMCC uses three basic categories of assessment and evaluation (institutional, programmatic and curricular), each of which has a different perspective and degree of granularity, but all of which are interrelated, as shown in the diagram below. There is overlap between all three categories, but for the purposes of this Plan assessments have been placed in the category with the greatest impact or relevance.



Institutional Evaluation:

- Student Satisfaction Survey
- Alumni Survey - Alumni Success and Satisfaction
- Employee Engagement and Climate Survey
- Student Census Survey
- Clinic Quality Assurance Evaluation
- Program Completion Rates - Undergraduate (DC Degree)
- Program Completion and Certification Rates - Graduate Studies
- Research Productivity
- Audit of Financial Statements
- Financial Ratios and Indicators
- OSAP Audit - Designated Learning Institution
- OSAP Financial Aid Loan Default Rate
- Annual Reports to the President
- President's Reports to the Board of Governors
- Annual Report to the MCU
- CCEC Annual Short Report

Programmatic Evaluation:

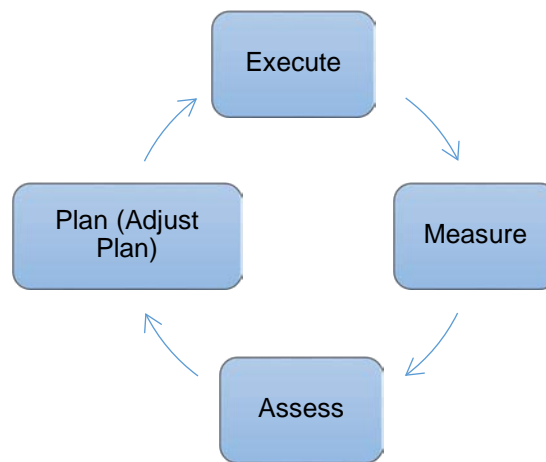
- Applicant Assessment - Undergraduate Education
- Applicant Assessment - Graduate Studies
- ExamSoft™ Longitudinal Tracking of Competencies
- Clinical Competency Evaluations - Year IV
- CCEB National Licensing Examinations
- NBCE National Licensing Examinations (USA)

Curricular Evaluation:

- Course and Faculty Evaluations - Years I-III
- Faculty Evaluations - Year IV
- Year I-III Curriculum Focus Groups
- Year IV Exit Survey and Interviews
- Course Grades and Supplemental Exams - Years I-IV
- OSCE (Objective Structured Clinical Examinations) - Years I-IV

Interrelationship of Planning, Assessment and Evaluation

Although much of this Assessment Plan focuses on Academics and related assessment, other elements are inclusive of overall institutional planning and the institutional assessment, evaluation and effectiveness loop. Under the general oversight of the Division of Institutional Planning and Assessment, CMCC maintains a comprehensive and ongoing system of planning, assessment and evaluation that aligns with CMCC's model of institutional effectiveness and continuous improvement. The organizational structure, organizational assessment process, goal setting and outcome-oriented approach to the overall loop ensures the comprehensiveness and effectiveness of planned strategies. Academic Assessment is a key component of this overall organizational planning, assessment and evaluation process.



Academic Assessment – Concepts, Definitions, Types and Principles

Academic assessment is a widely discussed topic, yet many academic stakeholders have different interpretations of assessment. It is also consistently mixed with evaluation. Simply put, in the academic context assessment is the systematic collection of data to monitor the success of a program or course in achieving intended student learning outcomes. Assessment deals with the process of gathering data. More specifically, assessment is the way in which instructors gather data about their teaching and their students' learning (Hanna & Dettmer, 2004). The data collected during assessment covers a range of activities using different forms of assessment such as: pre-tests, observations, and examinations. Once this data is gathered, it can then be used to evaluate the target population's (student or instructor) performance. Evaluation, therefore, is the next step that provides judgement about the overall value of an outcome based on the assessment data. During the academic decision-making process both assessment and evaluation are used in a synchronized manner for institutional effectiveness by making improvements on the recognized weaknesses, gaps, or deficiencies in target populations, learning environment, policies, processes, procedures, teaching methods, course content, and overall curriculum, etc.

Although various types of assessment are ingrained in most of the academic activities there are four major institutional activities that involve assessment of students: admissions, guidance and placement, classroom learning, and credentialing or certification. Academic assessment of students is generally used to determine what students have learned (outcome); the way they learned the material (process); and their approach to learning before, during, or after the program or course. Similarly, assessment of faculty is carried out for purposes similar to the assessment of students to ensure teaching methods, course content and student teacher interaction continue to meet the highest standards and a culture of scholarship in teaching and learning can be established. The assessment of faculty should be aimed at enhancing their performance as teachers and mentors of students and as contributors to the advancement of knowledge.

At CMCC there are two basic types of assessment:

- **Formative assessment** provides feedback and information during the instructional process while learning is occurring. Formative assessment measures student progress. This type of assessment can also assess progress of an instructor/teacher.
- **Summative assessment** takes place after the learning has been completed and provides information and feedback that sums up the teaching and learning process.

Additional assessment types are used by various schools of thought that are generally a subset of the aforementioned types of assessment.

There are two basic types of measures used in academic assessment, i.e., direct and indirect measures.

- **Direct measures** are the outcomes of an assessment process that is responsible for a direct examination of student knowledge against measurable student learning outcomes. A direct assessment of student learning can be conducted throughout a course using techniques such as exams, quizzes, demonstrations, reports, etc. These techniques provide a direct sample and strong evidence of student learning.
- **Indirect measures** of student learning ascertain the perceived extent or value of learning experiences. They assess opinions or thoughts about student knowledge or skills. Indirect measures can provide information about student perception of their learning and how this learning is valued by different constituencies. An indirect measure is useful in that it can be used to measure certain implicit qualities of student learning, such as values, perceptions, and attitudes, from a variety of perspectives¹.

All assessment methods have their limitations and contain various biases. Assessment data quality is a key component of any assessment plan to ensure that the conclusions are based upon reliable and valid data. To accommodate this, CMCC's Assessment Plan uses both direct and indirect measures from a variety of sources and target populations (stakeholders). This use

¹ Goldie J. AMEE Education Guide no. 29: Evaluating educational programmes. Medical Teacher. 2006 Jan 1;28(3):210-24.

of multiple assessment methods ultimately helps in providing integrated evidence of student learning.

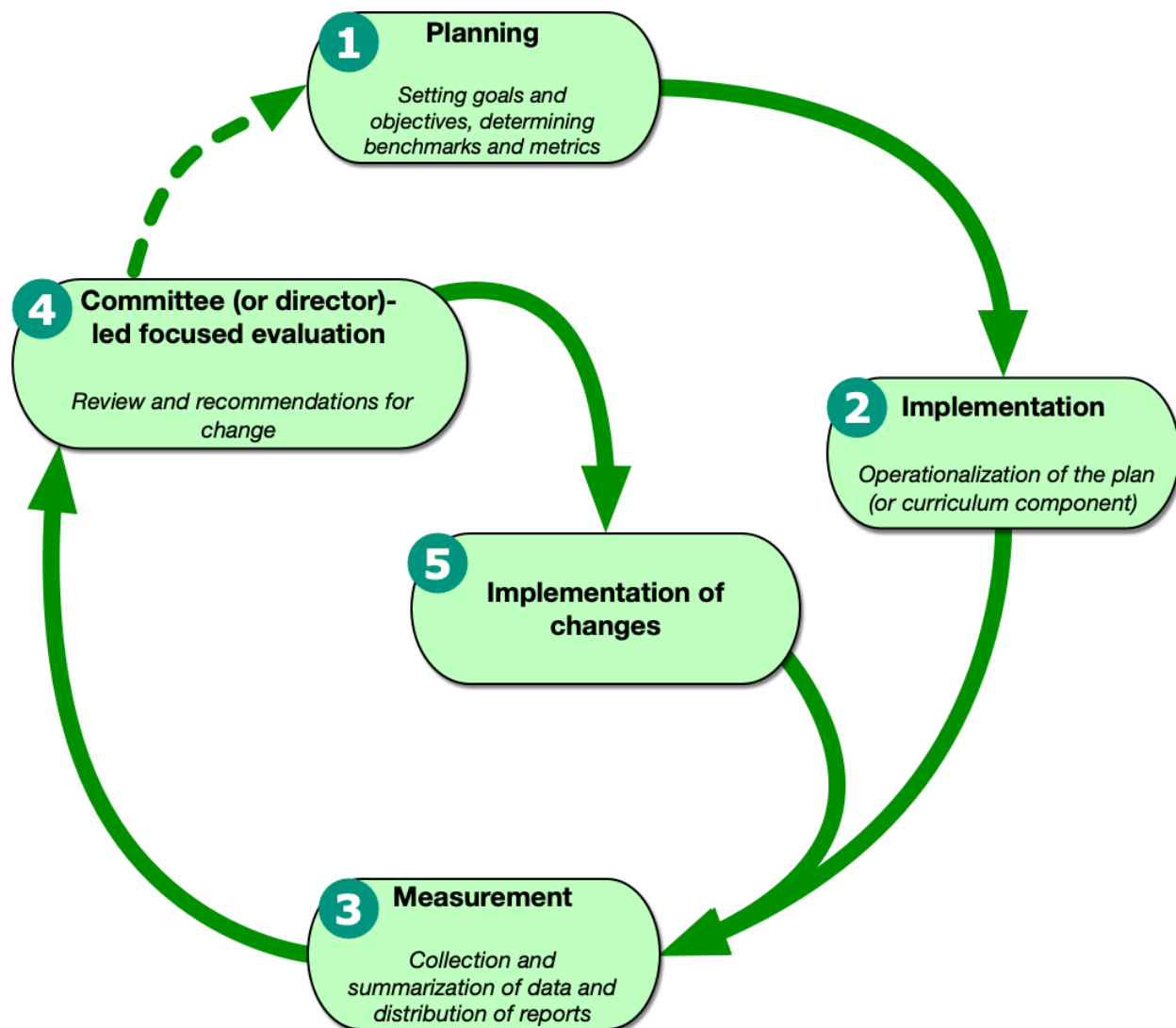
The American Association of Higher Education (AAHE) has published *Nine Principles of Good Practice for Assessing Student Learning*. We have combined some of these principles to simplify them down to six. CMCC strives to fully embrace these principles in future assessment planning. See Appendix 2 for a full description of these principles.

- The assessment of student learning begins with educational values.
- Assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time and hence works best when it is ongoing and not episodic.
- Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes. The purposes are reflective of the course outcomes and graduate competencies, and the student experiences that led to them.
- Assessment fosters wider improvement when representatives from across the educational community are involved.
- Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change.
- Through assessment, educators meet responsibilities to students and to the public.

At CMCC assessment is done through a variety of means and strategies so that the weaknesses of one are cancelled out by another's strengths providing a comprehensive student assessment profile.

The Assessment Cycle

In general, assessment in each of the components of CMCC's Assessment Plan follows a similar spiral path, as shown in the diagram and described below.



1 Planning can be at the level of the institution (e.g., CMCC Institutional Plan, Board directive), executive (President and Executive Leadership Team), academic division (undergraduate and graduate), or committee (Board committees, administrative committees, program committees and working groups). When possible, plans are accompanied by metrics, assignments of authority and responsibility, and any available benchmarks. In the context of this Assessment Plan, “planning” includes curriculum development activities.

2 Implementation follows the development of plans. This might include curriculum delivery, faculty and staff training, operationalization of strategic goals/strategies/

objectives, delivery of services, acquisition and deployment of equipment or other capital items (including software and software-as-a-service; SAAS), and physical plant renovations.

3 Measurement is performed in a variety of ways, including external examinations (e.g., national licensing exams), surveys, audits, internal business intelligence, classroom and laboratory exams, direct observations, clinical exams (e.g., Objective Structured Clinical Examinations – OSCE), external reviews and consultancies, self-evaluations, and employee performance evaluations. For classroom and laboratory assessments, data analysis is performed by the Academic Team. For clinical assessments, data analysis is performed by the Clinic Management Team. The Office of Institutional Planning and Assessment manages most formal surveys and institutional measures.

4 Committee or Director-led Focused Evaluation is the process by which data collected from the above steps is reviewed and acted upon by the appropriate committee(s). This critical stage is the process of providing analysis and feedback on the outcomes of the measurement. Depending on the nature of the assessment and the respective committee, a report may be generated that includes recommendations for change to effect improvement. In some cases, this reporting is simply captured by committee minutes, whereas in other cases a more formal report is issued. Minor changes may be managed at the individual or department/divisional level, whereas recommendations for more significant changes are forwarded to the Institutional Affairs Committee.

In some cases, the focused evaluation is performed by a director rather than a committee. This is most often done when the evaluation is for individual or course assessment rather than for programmatic feedback. For example, course evaluations are reviewed by one of the Year I-III education directors.

5 Implementation of Changes is the resulting step after the respective committee has recommended or directed a change to address any deficiencies or weaknesses identified in the Committee-led Focused Evaluation. At times, recommendations for change are directed at furthering improvements in an area or process that is already functioning well and has met established thresholds or benchmarks, but for which there is still an opportunity for improvement.

Any changes that are made are then assessed at either the next regularly scheduled assessment date or at a sooner date if urgent. This continuous spiral of assessment, change and reassessment provides the feedback needed for continuous quality improvement.

- ● At times, the Committee or Director-Led Focused Evaluation may result in the need to modify benchmarks, metrics, or objectives in the initial plan.

Part III: Institutional Assessment and Evaluation

This section covers the assessment and evaluation of non-academic operations and entities, including physical facilities, environmental factors, external factors, institutional leadership, IT, student services, library, clinics, campus climate, employees, safety, and financial performance.

Data are primarily collected from surveys. Several major surveys are administered and compiled by an external consulting firm, Customer Relationship Index Inc. (CRi), working closely with CMCC's Institutional Planning and Assessment department. CRi is engaged for the Student Satisfaction Survey, Alumni Survey and Employee Engagement Survey. CRi is used by more than fifty Canadian colleges and universities and is able to provide comparative data for benchmarking purposes. Anonymity of responses is assured by having the surveys administered by CRi.

The surveys cover multiple areas, as shown in the Areas of Interest column for the following tables.

Institutional Evaluation:

- Student Satisfaction Survey
- Alumni Survey - Alumni Success and Satisfaction
- Employee Engagement and Climate Survey
- Student Census Survey
- Clinic Quality Assurance Evaluation
- Program Completion Rates - Undergraduate (DC Degree)
- Program Completion and Certification Rates - Graduate Studies
- Research Productivity
- Audit of Financial Statements
- Financial Ratios and Indicators
- OSAP Audit - Designated Learning Institution
- OSAP Financial Aid Loan Default Rate
- Annual Reports to the President
- President's Reports to the Board of Governors
- Annual Report to the MCU
- CCEC Annual Short Report

Student Satisfaction Survey

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Biennial; odd-numbered years	April/May 2017, 2019, 2021...	Student life, safety, student activities, academic program, academic resources, faculty and quality of instruction, course materials, administrative support, education directors, library resources, lab facilities, lab quality, clinical training, clinic experience, clinic management team, Student Services (financial aid, registrar, personal	ELT; Academic Team; Student Services. Curriculum Committee also reviews survey elements related to the academic program. Further evaluation by Division Directors,

		counseling), food services, bookstore, IT services and help desk, peer tutoring, communications, Students' Council, overall experience at CMCC.	Clinic Management Team, IT, facilities, communications, library, Students' Council.
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As can be seen from the areas of interest measured in the survey, student satisfaction applies to both institutional evaluation and programmatic evaluation. It will be discussed only in this section.

The student satisfaction survey is administered every other year (odd numbered years). The Institutional Planning and Assessment department garners input and feedback in the planning of the survey from core departments across the institution including the Undergraduate division, Clinics and Student Services. The survey is updated prior to each administration to ensure accuracy and relevance to current events, as well as alignment to measuring institutional performance on select areas of the Strategic Plan. The survey is administered and reported by CRI. It gathers feedback from undergraduate students about their experiences at CMCC. The feedback received through the survey is used to guide positive change at CMCC and create an environment that best supports its students, its graduates, and the chiropractic profession as a whole. It recognizes that students are in a unique position to provide vital information and feedback as part of the institution's efforts to evaluate and assess its operations. The survey identifies CMCC's strengths and opportunities to improve in areas such as teaching and learning, student services, clinical care, academic supports, non-academic matters, IT and library resources, and facilities.

Responsibility for the focused evaluation begins with the Executive Leadership Team (ELT). ELT has administrators responsible for all aspects of institutional operations. As indicated by the survey results, further discussion is undertaken by the respective ELT member with the undergraduate academic team (including the library), clinic management team, student services, IT, facilities, ancillary services, or other area. The report is also reviewed by the Division Directors.

The data is also formally reviewed at the Curriculum Committee as part of its academic year-end meeting that seeks to review all performance metrics to inform potential changes prior to the beginning of the next academic year. The data received from the Student Satisfaction Survey has been archived over the years to allow for efficient longitudinal analysis to assist the institution in better understanding if past initiatives have made a change in the program from the students' perspectives and to identify where improvements or interventions are needed.

Alumni Survey – Alumni Success and Satisfaction

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Biennial; odd- numbered years	May/June 2019, 2021...	Practice income, practice status and type, professional and community engagement, satisfaction with CMCC curriculum (preparation for practice; clinical and business aspects), relevance of curriculum to practice, satisfaction with faculty and administration, satisfaction with CMCC services (Student Services, Library, Bookstore), postgraduate experiences, continuing education, CMCC membership, overall evaluation of CMCC.	ELT; Institutional Advancement (development and alumni affairs), and Continuing Education Effective 2021, the Curriculum Committee will also review survey elements related to the academic program. Further evaluation by clinics and library.

As occurs with the Student Satisfaction Survey, the Alumni Survey provides valuable input on both the institution as a whole as well as the DC degree program. It will be discussed only in this section.

CMCC surveys its alumni every other year (odd years). It is administered and reported by CRI. Up until 2016, CMCC also participated in the ACC (Association of Chiropractic Colleges) multi-institutional alumni survey however this was discontinued because of concerns over alumni confusion and survey fatigue, as well as realization that while the data provided from these surveys yielded relevant and constructive information, a survey specifically targeting CMCC alumni was deemed a more appropriate and relevant tool of measurement for the purposes of institutional assessment and feedback. The CMCC survey has traditionally been administered to all CMCC Members, regardless of the year of graduation. Following the 2019 administration, it was decided to take a more targeted approach in future surveys by limiting the respondent pool to alumni who graduated within 10 years of survey administration. This will ensure that the feedback received is both relevant and useful.

Responsibility for the focused evaluation begins with the Executive Leadership Team (ELT). As indicated by the survey results, further discussion is undertaken by the respective ELT member with Student Services, the Clinic Management Team, and the division of Institutional Advancement (development and alumni affairs).

Following the 2021 administration, the data will begin being reviewed at the Curriculum Committee.

Employee Engagement and Climate Survey

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Biennial; odd- numbered years	Nov/Dec 2017, 2019, 2021...	Job fit, career path, working space, co-worker relationship, manager relationship and support, engagement with CMCC as a whole, health and wellness at CMCC, safety, work-life balance, opportunities for advancement, professional development, communication and collaboration, overall satisfaction with CMCC.	ELT; HR Further evaluation by respective divisions or departments.

The Employee Engagement Survey is administered in the late fall of odd years. It is administered and reported by CRi. Responsibility for the focused evaluation begins with the Executive Leadership Team (ELT). The Human Resources (HR) Division also receives the survey results for review and planning. If required, further discussion is undertaken by the respective ELT member with various division directors. The survey evaluations often result in new HR initiatives and training programs. Several of the strategies in the current institutional Strategic Plan were the result of feedback received through this survey.

Student Census Survey (Merged with Student Satisfaction Survey beginning 2021)

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
New in 2019	Fall 2019	Student demographics (age, gender identity or gender expression, sexual orientation, religious affiliation, disability, and ethno-cultural identity), student disabilities, campus climate and EDI experience at CMCC, discrimination and harassment, perception of CMCC's learning environment.	ELT; Student Services Further evaluation by respective divisions or departments; Curriculum Committee and Director, Faculty Development will evaluate curricular aspects.

The Student Census Survey was administered for the first time in the Fall of 2019. All undergraduate students are invited to participate in this anonymous survey. This survey is administered by the IPA department. Future administrations of this survey will be consolidated

into the Student Satisfaction Survey to allow for greater analysis across a range of data categories.

Clinic Quality Assurance Evaluation

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	Ongoing. File audit results are reviewed with clinicians at biannual development days Patient Satisfaction Survey Results are reported every six months	Patient satisfaction, intern training, clinician training, patient rights and safety, application of evidence-based care, clinical reasoning, management plans,	Clinic Management Team (CMT) Curriculum Committee (as of 2021)

Although the CMCC clinic system is obviously tightly linked to the DC degree program because of the provision of clinical training experiences, the QA evaluation is included in the Institutional section of the Assessment Plan because of its broad review of multiple components of patient care that extend beyond student involvement.

The QA evaluation consists of three major components (the first two are discussed in this section):

- Patient File Audits- the Praefectus System
- Patient Satisfaction (Patient Experiences) Surveys
- Intern Supervision – Clinical competency evaluations (see section IV)

Patient File Audits: The audit of patient files is done by using an in-house IT tool (“Praefectus”). Praefectus exports data from the electronic health record into a database from which file auditors can assess a series of 60 elements for quality. Audits are conducted to ensure demonstration of accreditation standards and that the files meet the regulatory standards for record keeping as required by the provincial government. Praefectus also includes additional elements such as the capacity to track several educational goals for clinical learning at CMCC.

These may include course learning outcomes as well as general curricular outcomes. Any identified gaps can be brought back to committees like the Curriculum Committee such that plans to address these gaps can be implemented.

The Praefectus file audit system enables the Clinic Management Team (CMT) to notify clinicians if important 'standard of care' steps are being overlooked (e.g., consent, inappropriate diagnoses), or if 'best practice' concerns are missed (e.g., insufficient documentation of neurological findings). This is used for both improvements at the individual patient level as well as within the clinic system. The results of the audit are shared with clinicians at two levels. Audit results are reviewed with clinicians one-by-one in meetings with their Director at which the clinician's individual files are reviewed and goals for improvement are set. Summary data are reviewed with clinicians during the clinician development days, where clinic-wide goals are set and reviewed at subsequent meetings.

Beginning with a review of the requisite intake forms, the audit assesses various critical components of the history taking process, including the students' clinical reasoning skills and the inclusion of relevant differential diagnoses. It also assesses the selection and planning of a relevant and history-directed clinical examination and the determination of the underlying diagnosis(es) as well as any relevant differential diagnoses. Finally, the audit assesses the proposed plan of management for its inclusion of best evidence (best practices), completeness, and interprofessional collaboration and/or co-management. An auditor is able to conduct the audit entirely within Praefectus, however, a 'live' electronic file is reviewed as part of this process.

The audit process is done by element, where each element is tagged as either an educational and/or accreditation standard, or a Standard of Practice. The program immediately calculates a score based on whether an item is present, partially present, or absent. At the end of an audit, a "report card" for that file is generated. Any critical issues that are identified are dealt with immediately and the clinicians are asked to correct any deficiencies in the file.

Patient Satisfaction (Patient Experience) Surveys:

CMCC uses the Patient Experience Survey (PES) developed by Health Quality Ontario (HQO). The survey can be completed in 10-15 minutes and captures the experience for the patient's most recent visit as well as experience over the previous year. Patient participation is voluntary and anonymous. The link has been placed on the CMCC website: [CMCC Patient Satisfaction Survey](#).

The Clinic Management Team adopted the HQO survey and included some additional questions to increase the use of the data for CMCC purposes. These include such topics as name of clinician, clinic location, and type of visit (telehealth versus in-person).

The methodology of using PES at CMCC has the following components:

- Sample size calculation per clinic: this is calculated to determine the sample needed from each clinic to provide meaningful data.

- Frequency: CMCC follows the HQO recommendation for a year-round rolling approach in which all patients have the opportunity to complete the PES. Such a practice will allow for a continual opportunity for patients to contribute to the dataset.
- Review of Data: The PES was launched in the summer of 2020. Monitoring and presentation of the data is the responsibility of the Clinic Business Analyst to the Clinic Management Team. As trends become apparent, the Plan-Do-Study-Act cycle will be utilized to identify and implement change at CMCC clinics.

Patient Satisfaction Survey Results are scheduled to be analyzed and reported every six months. This includes:

- Summary of aggregate quantitative data by clinic
- Summary of aggregate quantitative data by clinician
- Assessment of progression to date to desired sample size
- Report of all qualitative data by clinic and clinician

In addition to the formal file audits (Praefectus) and PES surveys, attending clinicians in the CMCC system are subject to external QA Audits by the Regulatory College, a process by which a peer member of the CCO audits a select number of patient files. These confidential audits are not shared with CMCC but do serve to provide the clinician with additional feedback.

Program Completion Rates – Undergraduate (DC degree)

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	June-July	Four-, Five-, Six- and Seven-year completion rates of DC degree program students	Registrar, Curriculum Committee, Board Learning and Engagement Committee, Board of Governors

These are the percentages of DC degree program students (i.e., undergraduate students) who successfully complete the program within the normal time (four years), or within five, six, or seven years after matriculation. Six years is often referred to as the “150%” completion rate. Accreditors and governmental bodies vary in the rate they wish reported. Methods used for measuring the completion rates may also vary, resulting in slight differences from one report to another, but these are seldom of statistical significance.

Initial evaluation is done by the Registrar. The Curriculum Committee is the primary committee charged with analysis. The Board Learning and Engagement Committee and the full Board have

established the program completion rates as a key performance indicator (KPI) reviewed each Fall.

Program Completion and Certification Rates – Graduate Studies

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	August	Completion rates of graduate studies enrolled in one of CMCC’s residency programs. Specialty Certification / Fellowship status following program completion (subject to reporting to CMCC by the graduate or the specialty college).	Director of Graduate Studies, Curriculum Committee, Board Learning and Engagement Committee

Graduate studies program completion rates are the percentages of graduate students who successfully complete their residency within the normal time (two years for clinical sciences and sports sciences; three years for diagnostic imaging). Students in the joint CMCC clinical sciences program and IHPME master’s degree program are expected to finish in three years.

Specialty certification or fellowship status is the percentage of graduate students who receive specialty certification or fellowship status following completion of their graduate studies at CMCC.

Initial evaluation is done by the Director of Graduate Studies. The Curriculum Committee is the primary committee charged with analysis. The Board Learning and Engagement Committee also reviews the program completion rates as a key performance indicator (KPI) reviewed each Fall.

Research Productivity

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	August	Publications, presentations, grant applications and grants received.	Research and Innovation Team, Curriculum Committee, ELT, Board Learning and Engagement Committee, Board.

Annually, the Office of Research Administration compiles lists of research and scholarship outcomes, including publications, presentations, grant applications and grants received. These data are part of the Annual Reports submitted by the Research Division. Evaluation of the data is done by the Research and Division Team. The Curriculum Committee reviews the reports for relevant application to the curriculum and knowledge transfer. The Board Learning and Engagement Committee and full Board also review the faculty publication rates as a key performance indicator (KPI) each Fall.

Audit of Financial Statements

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	May-October	Audit risks: tuition revenue, salaries, investments, capital assets, management and controls, fraud.	ELT, Board Finance Committee, Board of Governors

The annual audit of CMCC’s financial statements is performed by an independent auditor, currently BDO Canada. The timeline for the process varies slightly from year-to-year, but generally follows the following sequence:

- May – planning and interim fieldwork by the auditors
- June – approval of the audit planning report by the Board Finance Committee
- July-August – fieldwork by the auditors
- September – presentation of the draft audited financial statements report by the auditors to the Board Finance Committee
- October – approval of audited financial statements by Board of Governors

The audit is conducted in accordance with Canadian generally accepted auditing standards for not-for-profit organizations. Those standards require that the auditor comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. The audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by CMCC, as well as evaluating the overall financial statement presentation.

Financial Ratios and Indicators

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation</u> <u>Done By</u>
Annual	July-September	Institutional financial health, fundraising performance, tuition dependency and non-tuition revenue, long-term debt, institutional reserves, investments.	ELT, Board Finance Committee, Board Institutional Advancement Committee

After the fiscal year has closed (May 31) and the annual independent audit has concluded, there are several key performance indicators based on financial ratios that are calculated and reported to the Board. Annual performance as well as five-year trends are reported. These ratios produce an overall picture of CMCC’s financial health and provide valuable information for risk management, strategic planning and annual and long-range budgeting.

Ratios and other financial measurement that are used for evaluation purposes fall into two general categories:

Fundraising performance

- Net donations*
- Cost to raise 1\$*
- Net CMCC Membership Revenue*
- Net Special Events*

General Financial Performance and Investments

- General Fund*
- Tuition as a Percent of Total Operating Expenses*
- Primary Reserve Ratio*
- Net Income*
- Return on Net Assets
- Viability Ratio
- Composite Financial Index (CFI)

(* indicates currently a Board-level KPI. It is likely that in 2021, the Board Finance Committee will designate the CFI as a new Board-level KPI)

There are several other indicators and ratios that are used for special purposes and which are not included above. Similarly, grant revenue is not specifically identified in the above ratios.

OSAP Audit – Designated Learning Institution

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	July-August	Manuals and policies, admissions requirements and processes, OSAP administrative procedures	Student Services, ELT, Board Finance Committee

In order for a student at CMCC, a private postsecondary institution, to be eligible to apply for financial assistance under the Ontario Student Assistance Program (“OSAP”), which includes Canada and Ontario student loans, Ontario Student Grants and associated grants, scholarships and bursaries, both the institution and the student’s program of study must be approved by the Minister of Colleges and Universities for Ontario Student Loan purposes. Approval is also subject to a Performance Requirements agreement containing terms that the Minister considers proper. This Performance Requirements agreement is revised and renewed annually.

Private postsecondary institutions approved by the Minister for student financial assistance purposes under the Ontario legislation become designated institutions for student financial assistance purposes.

OSAP Financial Aid Loan Default Rate

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	November	OSAP default rates, OSAP Repayment Assistance Plan (RAP) usage rates	Student Services, ELT

The cohort default rate on student loans managed through the Ontario Student Assistance Program (OSAP) is an indirect measure of the success of CMCC’s graduates. Rates are issued by the Ministry in November of each year and are posted, along with data from prior years, on the [Ontario Government website](#).

Annual Reports to the President

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	August	<u>Academic</u> : DC and Graduate Studies program overviews, student admissions and promotion, curriculum, program	President, ELT

		delivery, competencies, assessment, research and scholarship, faculty, student support, clinics, finance, facilities, library, IT. <u>Administrative:</u> Divisional operational summaries of initiatives, strengths and areas of distinction, opportunities, challenges, risks, financial management, recommendations for improvement	
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Annually, each Division Director and member of the Executive Leadership Team, provides a report on operational activities and accomplishments. These reports follow a self-study format using a format provided by the office of Institutional Planning and Assessment. Two templates are provided: one for use by the academic programs (undergraduate and graduate studies), and the other for use by administrative divisions. Annual reports may not be required for years during which the institution is engaged in a formal self-study process for an accrediting agency (CCEC, CCE) or the Ministry (PEQAB).

The reporting period is June 1 – May 31, coinciding with the fiscal year.

President’s Reports to the Board of Governors

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Biannual	April and October.	Strategic plan – status of goals and strategies. Operational activities may also be included.	President, ELT, Board of Governors

The President provides a comprehensive report to the CMCC Board of Governors for its semiannual (typically April) and annual (typically October) meetings. This is primarily a report on the status of the goals and strategies in the institutional Strategic Plan. A reporting template, based on the Strategic Plan, is provided to ELT members and other designees.

For the April Board meeting, the report covers the period of October 1 – March 31.
 For the October Board meeting, the report covers the period of April 1-September 30.

Following presentation of the report to the Board, the report is posted on the KIRO Learning Management System for review by the CMCC community.

Annual Report to the Ministry of Colleges and Universities (MCU)

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	July	Changes in legal or accreditation status, transcript access and storage, tuition trust fund, audited financial statements, annual enrolment numbers.	Student Services, Institutional Planning and Assessment

This is an annual report required by the Ministry of Colleges and Universities (MCU; formerly the Ministry of Training, Colleges and Universities – MTCU, or the Ministry of Advanced Education and Skills Development – MAESD). It is typically submitted in July of each year.

The reporting period is June 1 – May 31, coinciding with the fiscal year.

Council on Chiropractic Education Canada (CCEC) Annual Short Report

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual (except years of site visit or mid-cycle review)	October	Annual enrolment and admissions, student outcomes (including performance and completion rates), faculty size, finances, response to enrolment changes.	IPA, ELT, Board Learning and Engagement Committee

The Council on Chiropractic Education Canada (CCEC) requires an annual report (while the CCEC was undergoing transition and development of a new Handbook, CMCC was not required to submit a report from 2018-2019; it voluntarily submitted a report in 2020). The new CCEC Handbook of Accreditation now addresses the required report:

In all years of the eight-year accreditation cycle, except for those years in which there is an accreditation site visit, or, in the year in which there is a mid-cycle review, which is typically at year four, DCPs will provide to CCEC an Annual Short Report. The Annual Short Report describes key components necessary to maintain open communication between CCEC and the DCP, and shall contain:

- *annual enrollment and admission;*
- *student outcomes, including performance and completion rates;*
- *student full-time enrollment, including current and prior year;*
- *faculty full-time employment, including current and prior year;*
- *a narrative discussing how the program has responded to enrollment changes regarding planning, budgeting, resources, staff and other impacted factors;*
- *a financial report*

It is expected that the new CCEC Annual Short Report will be prepared by the office of Institutional Planning and Assessment and reviewed by the ELT and Board Learning and Engagement Committee.

Note: If CMCC becomes accredited by CCE (US), then additional reporting will be required beginning in 2022, to include a Program Characteristics Report -PCR (biennial) and Program Enrollment and Admissions Report –PEAR (annual).

Part IV: Curricular Assessment and Evaluation

Part IV of the Assessment Plan focuses on the curriculum itself. Although there is overlap between the categories of evaluation in Parts III, IV and V, assessments in Part IV tend to be those that focus on learning outcomes in a single year or individual courses, rather than learning from across multiple years (see Part V for the latter).

Curricular Evaluation:

- Course and Faculty Evaluations - Years I-III
- Faculty Evaluations - Year IV
- Year I-III Curriculum Focus Groups
- Year IV Exit Interviews
- Course Grades and Supplemental Exams - Years I-IV
- OSCE (Objective Structured Clinical Examinations) - Years I-IV

Course and Faculty Evaluations – Years I-III

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	After each set of module exams; staggered release	<p><u>Course:</u> helpful instructional methods, suggestions for improvement, KIRO course site, use of educational technology</p> <p><u>Tutor:</u> helpful instructional methods, suggestions for improvement, demonstrations and explanations, modeling of professional behaviours, KIRO site</p>	Director, Curriculum and Faculty Development, Curriculum Committee, Education Directors

Years I-III course and faculty evaluations are distributed electronically around the end of each module and are carefully deployed by undergraduate administrative assistants to stagger their release and encourage uptake. The evaluations have two components: 1) students evaluate the course as a whole; and 2) students evaluate each faculty member that they had for the course. The collected responses are reviewed by the respective Education Directors and then distributed to the individual faculty member for review and discussion. At the faculty member's annual performance review, the course evaluations are again discussed and areas for improvement are identified, which are included in a faculty development plan and monitored throughout the next academic year. The performance reviews are a mandatory annual occurrence and also serve as an opportunity for faculty to sign their commitment renewal and code of conduct.

The Curriculum Committee reviews course evaluation trends and larger concerns coming out of course evaluations (e.g., curricular redundancies, inconsistencies and gaps, effectiveness of teaching methods).

Individualized professional development is discussed with a faculty member’s Director, with Curriculum and Faculty Development providing supports. Additional faculty support can be in response to course evaluations or planned collaboratively towards co-determined goals.

Faculty Evaluations – Year IV

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	Quarterly	Clinical teaching skills: learning environment, autonomy, organization, feedback, questioning, modification of teaching methods, use of research and evidence-based guidelines, demonstrations, diagnostic skills, communication skills, cost appropriate care	Clinic Management Team (CMT)

Quarterly, Year IV students provide feedback about their supervising clinical faculty member (clinician) through the anonymous completion of the *Cleveland Clinical Teaching Effectiveness Instrument*². Feedback is relayed through a one-on-one meeting with the clinician and their Director. Although specific questions are asked about several areas related to the students’ learning and the clinician’s teaching and management style, the questionnaire also allows for the students to provide open text feedback about what the clinician does well and where they can improve. Summary reports are then generated, after which this feedback is shared with the respective clinician. Any urgent concerns are addressed quickly by a Director of Clinical Education and Patient Care. Clinicians are asked to review and reflect on their student feedback and then select one or two items where they feel that they would be able to make appreciable changes to their teaching and management practices commensurate with the feedback received from their students. A Director of Clinical Education and Patient Care will also review all four sets of the evaluations with the clinician at their annual Performance Review.

² Copeland HL, Hewson MG. Developing and testing an instrument to measure the effectiveness of clinical teaching in an academic medical center. Acad Med. 2000 Feb;75(2):161-6.

Year I-III Curriculum Focus Groups

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	Summer	Course and faculty evaluation trends, general comments on the DC degree curriculum	Director, Curriculum and Faculty Development. Curriculum Committee

To probe deeper into the results of the annual course and faculty evaluations, focus groups with representatives from each class are led and conducted every summer by the Director, Curriculum and Faculty Development. In a semi-structured interview format that is documented using minutes, students are asked for further information on trends and themes elicited from the annual evaluations. It is an opportunity for students to share their thoughts on the curriculum and to be involved in the process. Results are reviewed by the Curriculum Committee.

Year IV Exit Survey and Interviews

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	May-June	Clinic experiences, case mix and patient diversity, preparation to enter clinic, preparation for professional practice, facilities, equipment, electronic resources	Clinic Education Directors and Clinic Management Team (CMT) Director, Curriculum and Faculty Development and Curriculum Committee

Year IV students (interns) complete an on-line survey prior to an in-person 30-minute exit interview with a CMT Director/Dean to provide feedback regarding their clinical internship year as they exit clinic. Various questions, covering several topic areas are asked to rate their experiences in clinic and provide feedback on their clinicians.

Feedback relating to Year I-III courses is addressed by the Director of Curriculum and Faculty Development and the Curriculum Committee.

Course Grades and Supplemental Exams – Years I-IV

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	At end of the academic year	Number of supplemental exams, number of withdrawals from the program	Education Directors Student Promotion Committee Curriculum Committee

Years I-III course grades are compiled and reviewed as an aggregate. Course performance trends are analyzed by the respective Education Director. The number of supplemental exams and any program withdrawals are reviewed by the Education Directors, Student Promotion Committee and Curriculum Committee.

OSCE (Objective Structured Clinical Examinations) – Years I-IV

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	At end of the academic year (Years I-III); mid- and end-year for Year IV	Clinical competencies relevant to each year.	Education Directors Director, Curriculum and Faculty Development Clinic Management Team Curriculum Committee

Years I-III each have a year-end OSCE (Objective Structured Clinical Examinations) that is required for promotion to the next year. Year IV has both a mid-year and a year-end exam. OSCEs require the integration of information from across multiple courses given in the respective year and are thus useful for evaluation of the overall learning outcomes of each year

These standardized patient-based exams are Years I-III year-end and Year IV mid- and year-end summative assessments of the level of clinical competence expected for the respective year. These assessments aim to integrate the foundational and clinical sciences, with demonstration of particular clinical skills within a clinical situation. OSCEs are blueprinted to ensure that an appropriate array of conditions and skills are covered within the ten stations. These stations are also tagged to the roles outlined in CMCC's Exit Competencies. ExamSoft™ has recently been incorporated into OSCE grading, providing greater inter-examiner agreement on scoring. Review and reflection of the exam is encouraged for students afterwards and is seen as a useful experience by both strong and weak students. Remediation is done with those students who

are unsuccessful in their first attempt. This involves meeting regularly with a faculty member and practicing extensively on areas of deficiency in preparation for a supplemental exam.

Part V: Programmatic Assessment and Evaluation

Programmatic and curricular evaluation are closely related, but an effective academic program is achieved only when a quality curriculum is supported by many other functions outside of the curriculum itself. These include admissions processes, faculty characteristics, curriculum delivery methods, student supports, and the learning environment. Learning outcomes assessments in Part V are those that measure learning across multiple years, rather than just within one year or in individual courses (see Part IV for the latter). Student supports and the learning environment were included in the institutional assessments discussed in Part III.

Programmatic Evaluation:

- Applicant Assessment - Undergraduate Education
- Applicant Assessment - Graduate Studies
- ExamSoft™ Longitudinal Tracking of Competencies
- Clinical Competency Evaluations - Year IV
- CCEB National Licensing Examinations
- NBCE National Licensing Examinations (USA)

CMCC offers two types of academic programs: undergraduate education leading to the Doctor of Chiropractic (DC) degree; and graduate studies in three specialty areas (Clinical Sciences, Diagnostic Imaging, and Sports Sciences) leading to a graduate studies diploma and fellowship examination eligibility.

Applicant Assessment – Undergraduate Education

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	January-March	Applicant eligibility, applicant suitability for CMCC.	Admissions Committee (interview and written response scoring done by Admissions Assessment Team) Curriculum Committee reviews admissions data

In order to ensure that the best possible quality of student is selected for the undergraduate program, the Division of Student Services undertakes a broad-based applicant assessment process that uses academic and non-academic data to make admissions decisions.

An applicant's eligibility for admission is determined initially by their having satisfied minimum admissions standards as defined by the Council on Chiropractic Education Canada (CCEC) and the Postsecondary Education Quality Assessment Board (PEQAB) of the Ontario Ministry of Colleges and Universities. This will be expanded to formally include admissions standards defined by the Council on Chiropractic Education (US) following accreditation by that organization. Having met these minimum standards, an applicant is then invited to progress through the admission assessment process in which their overall suitability for the undergraduate program is determined.

Suitability for the DC program is determined by answering two essential questions:

1. Does the applicant have the potential to be academically successful in the DC program?
2. Does the applicant have the potential to be professionally successful as a chiropractor and health care leader?

The first question is addressed by assessing the applicant's academic background in university level study. The equivalent of the last three years of full-time university level study are reviewed and a Cumulative Grade Point Average (cGPA) assessed on a 4.0 scale. This cGPA will determine the applicant's potential for academic success. No specific pre-requisite courses are assessed. Further information pertaining to master's or doctoral degree coursework is found in the Academic Calendar and Admissions Policy.

The second question of determining potential for professional success is answered by an applicant completing an admissions interview and personal statement. Interviews are granted to select applicants. Possession of the minimum requirements does not guarantee an interview or offer of admission. The behavior-based interview employs a web-based video interview platform through which applicants respond to six questions. As past behavior is one of the greatest predictors of future behavior, applicants describe their individual experiences in each of six competencies in response to randomized questions. CMCC employs the CanMEDS competency framework as the foundation for its behavior-based interview. Specifically, applicants are assessed according to their past experiences of having demonstrated the following competencies:

- Collaboration
- Professionalism
- Communication
- Leadership/management
- Health advocacy
- Scholarship

Furthermore, applicants submit an impromptu personal statement upon completion of the video interview, which not only demonstrates their ability to communicate in written English, but also their contextual understanding of chiropractic and health care. Specifically, applicants

submit timed written responses to questions that address their understanding of the chiropractic profession, their motivation for a career in chiropractic, and their passion for health care.

Video interview responses and timed written responses are then evaluated by an Admission Assessment Team, comprised of a CMCC alumni member, a member of the faculty or staff, and a current Year IV student. The evaluation is conducted on a five-point scale and assessor scores are averaged to arrive at a final score for each competency and each written response question. Each assessment team’s scoring is monitored and reviewed by a voting member of the Undergraduate Admissions Advisory Committee, to provide for consistency and quality control.

The decision to offer admission to the DC program is then made according to a weighted admission score. With the academic assessment bearing the most significant weight, the GPA is converted to a percentage score, and then weighted to 60%. The interview score is converted to a percentage and then weighted to 30%; and the written statement percentage score is weighted to 10%. Overall scores are then reviewed by the Undergraduate Admissions Advisory Committee, and any discrepancies are resolved at the committee level. Recommendations for admission are then made to the Registrar, who conducts the final quality control review and determines thresholds for admission offers and wait list spaces in accordance with institutional enrolment targets.

Focused evaluation of the effectiveness of the admissions process is done at the committee level by the Curriculum Committee.

Applicant Assessment – Graduate Studies

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	Nov-Dec	Applicant eligibility, applicant suitability for residency program.	Graduate Studies Selections Committee
	July-October	Graduate studies program completion rates	ELT and Board Learning and Engagement Committee review program completion data.

Admission to the Graduate Studies program is a two-phase process and based on a combination of academic and non-academic attributes. The first phase consists of submission of an application package that consists of the following:

1. Curriculum Vitae formatted according to the CMCC template.
2. Personal Essays. This includes two standardized questions and two statements that outline activities or achievements from the applicant’s curriculum vitae that exemplify the attributes aligning with the exit competencies from the Graduate Studies program.
3. Official transcripts from all chiropractic programs and post-secondary institutions attended.
4. Three letters of reference.
5. Letter of good standing.

Application packages are reviewed for completeness and qualified applicants are invited for an interview with the Selection Committee. Admissions requirements are in the Academic Calendar. The Committee includes representatives from the three Specialty Colleges (Clinical Sciences, Diagnostic Imaging, Sports Sciences), a resident, along with representatives from Student Services and other Divisions. The second phase of the application process includes a 45-minute interview. The interview delves into a series of questions exploring areas such as the applicants understanding of the program, their motivation for applying, their communication skills etc. The interview questions are scored using a Likert scale. The Selection Committee considers both the application information and the interview in making a final decision.

Focused evaluation of the effectiveness of the admissions process is done at the committee level by the Executive Leadership Team and the Board Learning and Engagement Committee through the analysis of the graduate studies program completion rates. These rates are included in the institutional KPIs. Performance below acceptable thresholds would trigger recommendations for changes in either admissions requirements or the academic program to be sent to the Graduate Studies division for action.

ExamSoft™ Longitudinal Tracking of Competencies

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	Ongoing	Student attainment of clinical competencies, curricular content mapped against Bloom’s taxonomy.	Curriculum Committee Board Learning and Engagement Committee (beginning 2021)

After every assessment faculty reflect on assessment questions and ensure that they are measuring learning outcome attainment. Reports generated by ExamSoft™ provide both students and faculty with information that can be used to remediate and improve performance, and which can be reviewed and acted upon by Curriculum Committee.

ExamSoft™ reporting allows for tracking assessments against graduate competencies, Bloom’s taxonomy, and the Canadian Chiropractic Examining Board (CCEB) benchmarks. Particular emphasis over the past year has been on the addition of written assignment dimensions due to the increased use of the rubrics functionality. About 50% of Year I-III students’ GPA is achieved through examinations delivered via ExamSoft™. Year IV reporting of a student’s attainment of all graduate competencies is included at year-end, when entry-to-practice competency is demonstrated. Much of this comprehensive tracking is now being accomplished in ExamSoft™.

Clinical Competency Evaluations – Year IV

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	Six times during the internship; schedule is set by the clinician – one set over each two-month period.	Student attainment of clinical competencies.	Supervising Clinician Clinic Management Team (CMT) Curriculum Committee

In the clinic system, each clinician is responsible for evaluating their assigned interns’ performance by conducting a standard set of clinical competency evaluations over a two-month interval, six times per year. During every competency evaluation, the clinician directly observes the intern’s performance. This represents a snapshot in time regarding the state of the intern’s clinical skills. Whenever possible, immediate constructive feedback is provided to the intern as soon as possible after the evaluation as part of the learning process.

These are demonstrations of competencies in application to real patients and real clinical situations. These competencies are built in layers over the four years of the academic program. In Miller’s pyramid, these clinical competency evaluations are at the highest level of authenticity, the “Does” category. Many of the CMCC Graduate Competencies, CCEC Entry to Practice Competencies, and CCE Meta-competencies are specifically assessed during these clinician-directed intern evaluations. Six of these clinical competency evaluations are done each two-month period. It may require multiple observations for a clinician to complete a full set on an intern.

A set of Clinical Competency Evaluations consists of eight assessments:

- file audit

- case history
- history directed physical examination
- report of findings
- therapeutic care
- case presentation
- two separate assessments of professional conduct

This category of assessment could easily have been included in the Program Evaluation section (Part V) but was placed in Part IV because there are multiple assessments across Year IV that are related to patients seen during the internship and which measure skills and attitudes directly addressed during the year.

CCEB National Licensing Examinations

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation Done By</u>
Annual	February, May and October. (single report received in Nov-Dec)	Component A: Foundational (basic) sciences Component B: Clinical sciences and ethics Component C: OSCE clinical competency practical exam	Academic team Curriculum Committee Board Learning and Engagement Committee

Canadian Chiropractic Examining Board (CCEB) licensing examinations are needed for registration in all of the Canadian provinces.

- Component A is taken within ten months before graduation
- Component B is taken within six months before graduation
- Component C is taken within three months before graduation

Components B and C can be taken together if within three months of graduation.

Although students receive results approximately one month after test administration, CMCC is not provided with individual student results. CMCC is also not privy to CCEB exam questions or the exam creation process. CMCC is provided an annual report November or December that provides aggregate performance results on the winter, spring and fall administrations.

The Board and its Learning and Engagement Committee have established CCEB performance as a key performance indicator (KPI).

NBCE National Licensing Examinations (USA)

<u>Frequency</u>	<u>Timing</u>	<u>Areas of Interest</u>	<u>Focused Evaluation</u> <u>Done By</u>
Annual	Part I: Jan, Apr, Aug. Part II: Feb, Jun, Sep. Part III: Mar, July, Oct. Part IV: May, Nov	Part I: foundational (basic) sciences Part II: clinical sciences Part III: written clinical competency Part IV: OSCE clinical competency practical exam	Academic team Curriculum Committee Board Learning and Engagement Committee

National Board of Chiropractic Examiners (NBCE) licensing examinations are required for licensure in all of the states in the USA. A small number of CMCC students sit for these exams annually. Because of the small cohorts, evaluation of validity as a measure of CMCC program effectiveness is difficult. Parts I, II, and III can be taken at Prometric testing centres in Toronto. Part IV must be taken at a site in the US.

- Part I can be taken by Year II students or later
- Part II can be taken by Year III students or later
- Part III is taken within nine months before graduation; Part I must have been passed.
- Part IV is taken within six months before graduation; Part I must have been passed

Components B and C can be taken together if within three months of graduation.

NBCE provides CMCC with individual student results, making it possible to identify students with a need for academic remediation. NBCE also provides periodic aggregate performance after every test administration.

APPENDICES

Appendix 1: Academic Assessment Methods Used At CMCC

Doctor of Chiropractic program students are assessed using the following methods. Each of the following methods has their own strengths and weaknesses, so by selecting an appropriate combination of approaches, a comprehensive overall assessment of student learning can be achieved.

Level of Miller's Pyramid at CMCC			
Knows	Know How	Shows How	Does
MCQ*/True-False	MCQ/True-False	Radiology written exam	Clinical Patient Interaction
Fill in the Blank	Fill in the Blank	HPD*	Patient Care Interaction
Short Answer	Short Answer	Clinical Diagnosis Practical	Patient Case Write-up
Matching	Matching	Technique Practical	Clinical Competency Evaluation
Hot spot	Hot spot	Simulated Case Presentation	Video Creation
In-class quiz	In-class quiz	Simulated Competency	Information Outreach
Online quiz	Online quiz	Grand Rounds Reflection	Externship
Written Assignment	Written Assignment	Simulation Lab Manikin	Faculty Experience
		Simulation Lab Force Table	Interprofessional Communication and Collaboration
		Written Assignment	Learning Objectives Exercise
		Portfolio Reflection	
		OSCE*	
*MCQ=multiple choice question; HPD=history, physical, diagnosis exam; OSCE=Objective Structured Clinical Examination			

Multiple Choice Questions (MCQ) and True/False

Multiple choice questions require a student to recognize a correct answer among a set of options that include two-four wrong answers. Less often used are true/false questions. Frequently, MCQ and true/false questions test students at a low level (i.e., recognition) of Bloom's taxonomy. Faculty training programs have included methods of using MCQ to involve the application, analysis and synthesis levels of learning and result in students demonstrating higher-order learning.

Short Answer Questions

Short answer questions involve open ended questions that require students to create an answer. They are commonly used in examinations to assess basic knowledge and understanding (i.e., low cognitive levels) of a topic before more in-depth assessment questions (i.e., higher cognitive levels) are asked on the topic. In clinic entrance, midterm and exit examinations, short answer questions are used to assess knowledge and understanding, but also deeper assessment of clinical reasoning. Short answer format questions allow students to describe their thought processes for clinical decisions such as determining diagnosis and management.

Quizzes (in-class and online)

Quizzes are short assessments that are used to challenge student understanding and assess comprehension of course material. Quizzes may be graded or ungraded and test from lower to higher order thinking. At CMCC in-class quizzes are often implemented through the use of a classroom response system (Top Hat® is most common).

Online Self-Assessments

Self-assessments provide students with the opportunity to work through cases and assess their level of knowledge in a given course in a formative manner.

Assignments (in-class and online)

Assignments are utilized in a variety of courses. Some focus on a specific topic to be explored, while others are case based in nature. Assignments generally are completed in a written format and submitted electronically through the LMS and undergo plagiarism detection, although a number of assignments may direct students to complete online work as part of their process.

Simulation Laboratory Assessments

The Simulation Lab (aka “SIM Lab”) is home of a clinical skills diagnostic lab, a treatment skills development lab, and a high technology audiovisual environment used to conduct history, physical, and diagnostic (HPD) exercises. This lab is an integral part of the educational resources at CMCC and provides a venue for experiential learning through the assessment of manikin (computerized simulators) and standardized patient clinical scenarios.

Clinical Skills Diagnostic Lab

The clinical skills diagnosis arm of the Simulation Laboratory involves the use of a physical space which is designed as a mock clinic containing a waiting room, reception area, and individual treatment rooms. This space is outfitted with an audio-visual management centre, and four highly sophisticated computerized manikins (simulators), which allows

students to experience a wide variety of rare and/or serious conditions that may be seen in a chiropractor's office.

Treatment Skills Development Laboratory

The psychomotor skills development arm of the Simulation Lab utilizes a combination of delayed video feedback using mobile devices and Force Sensing Table Technology (FSTT®). Force Sensing Table Technology provide students with the ability to finely tune their manual treatment skills (including manipulation, adjusting, mobilization, and massage) in a way that was previously impossible. This unique laboratory setting provides an opportunity for CMCC to enhance, evolve and standardize core education and practice. This is relevant to the teaching of chiropractic skills, sharing of learning resources and assessment of performance. Using live and rich animated video demonstrations, students learn the required skills and practice them in parts while receiving augmented objective feedback from the FSTT®, delayed video feedback of their kinematics, observational feedback from their instructors/peers, and feedback from their surrogate patient. Although the SIM lab is used mostly for formative feedback and remediation of students, some formal assessments are now being implemented within technique courses.

History, Physical and Diagnosis (HPDs)

History, Physical, Diagnosis assessments are a formative learning and assessment experience that take place in both first and second years. Students are provided with a Standardized Patient who mimics a particular presentation, and the student performs a comprehensive history and physical examination for the purpose of rendering a diagnosis. The entire process is recorded, and feedback is provided in two forms. One source of formative feedback is given immediately following the encounter. Suggestions for improvement are given by both the assessor and the patient. A secondary source of feedback is the videorecording of the entire encounter (including marker and patient feedback), which the student then reflects on later. Students undergo an assignment to facilitate reflection on not only their competencies as an expert in musculoskeletal health, but also other roles (e.g., communicator, professional) as well. Students retain access to their videos of experiential learning over the course of their education and can review them as necessary in order to see the development of competency. From Year I to Year II, the cases increase in complexity and relate to the body region which students are currently studying.

Team-Based Learning (TBL) Assessments

TBL activities are whole cohort sessions that involve testing student's individual understanding of material (Individual Readiness Assurance Test - IRAT), then participating in group activities and assessments (Team Readiness Assurance Test - TRAT). A final assessment helps solidify the learning that has taken place.

Grand Rounds

Grand Rounds is another type of Experiential Learning activity whereby students observe and engage a practicing chiropractor in the assessment and management of a patient. Through this interactive patient encounter, students play an active role in determining what they would do in taking a history, performing a physical examination and then delivering a report of findings and plan of management to the patient. Students are also able to probe the doctor's thought process in clinical reasoning and discuss alongside their peers. There is an additional reflective component to Grand Rounds completed in written form shortly after the encounter to solidify and personalize the learning to the individual student. This reflective component is essential to complete the experiential learning cycle³.

Grand Rounds takes place in Years I-III. These planned experiences relate to an area of study and subsequently increase in complexity and co-morbidities, while enhancing patient diversity as part of CMCC's institutional commitment to Equity Diversity and Inclusion. These 2-3-hour sessions take place on average once per module and offer a team-teaching opportunity to further integrate the foundational sciences within this clinical experience, along with evidence-based practice (EBP) instruction relating to patient management from the Library.

Objective Structured Clinical Examinations (OSCEs)

Another type of assessment which utilizes Standardized Patients is our year-end Objective Structured Clinical Examinations. These assessments aim to integrate the foundational and clinical sciences, with demonstration of particular clinical skills within a clinical situation. Students encounter a year-end OSCE for Years I-III, with both a clinic mid-term and exit OSCE exam being delivered in Year IV.

OSCE's are blueprinted to ensure that an appropriate array of conditions and skills are covered within the 10 active stations⁴. These stations are also tagged to the roles outlined in the CMCC Graduate Competencies, and the tasks required are at an appropriate level for the student at that point in their learning. Care is taken in the training of Standardized Patients, with the utilization of actors and practicing chiropractors portraying various presentations.

The examinations are designed in line with best pedagogical practices and the current literature. The Year I-III OSCE examinations increase in complexity as well as by body part being assessed and potential comorbidities/multiple diagnoses. Review and reflection of the exam is encouraged for students afterwards and is seen as a useful experience by both strong and weak students.

³ Sandars J. The use of reflection in medical education: AMEE Guide No. 44. *Med Teach*. 2009 Aug;31(8):685-95.

⁴ Pugh, D. & Smee, S. 2013. *Guidelines for the Development of Objective Structured Clinical Examination (OSCE) Cases*. Ottawa: Medical Council of Canada.

Remediation is done with those students who are unsuccessful in their first attempt. This involves meeting regularly with a faculty member and practicing extensively on areas of deficiency in preparation for a supplemental exam.

Psychomotor Skills Examinations

At CMCC manipulation, mobilization, joint assessment and soft tissue treatment skills are learned and assessed primarily in three technique courses. These skills are taught by explaining, demonstrating, practicing and receiving immediate feedback. Assessment is both formative and summative. Through the use of Force Sensing Table Technology students are given quantitative feedback on their timing, amplitude and the direction of their force. Summative assessment for student performance of psychomotor skills takes place two times per year. Students are given a formal assessment that grades each procedure taught in that module utilizing the following criteria:

- Doctor position
- Patient position
- Hand positions
- Direction of force application (line of drive)
- Tissue preload (soft tissue and joint slack)
- Movement produced by doctor

In addition, six biomechanical factors are commented on: presence of energy leaks in the doctor's body; insufficient momentum transfer from doctor to patient; insufficient impact between doctor and patient; creating long moment arms about the joints of the doctor; creating insufficient moment arms on the patient; and table not adjusted properly for the procedure.

In Clinical Diagnosis (CD) courses students learn and are assessed on psychomotor skills and physical examination skills (with emphasis on neurological and orthopaedic testing) and gain the ability to apply these tests in a real clinical setting. They learn to recognize the clinical significance and interpret the results of these tests. Students are assessed using the following methods:

- Lab presentation (Individual or pairs): Students prepare a written handout for a selected examination routine followed by a demonstration to their peers.
- Lab Presentation (Group): Students work in groups and role play simulator and assessor roles. In the simulator role, the student must create a real-life clinical situation, sometimes from a pre-constructed clinical case. As the assessor, a student must perform a patient examination; develop a list of differential diagnoses, a plan of management, and a report of findings.
- Interview Skills: CD 1201, 1302, 2201 and 3406 (Clinical Psychology) have labs specifically designed to develop patient interviewing skills. There is also an interview assignment in CD 3409.

- Formal lab testing, where students perform various examination procedures at various junctures throughout the year.
- Case studies are used in some of the CD courses. Of note, online and in-class case scenarios are used in CD 3303 and CD 3408. Students are assessed on cases where they must answer questions related to the case. Completion requires the student to retrieve and synthesize relevant research articles.
- Assignments that help the student recognize the impact of various conditions and understand issues surrounding conditions that will often present to the chiropractor.
- Written exams are especially useful for ensuring that the student recognizes the signs and symptoms and clinical features of the various conditions covered in each course, is able to select an appropriate diagnosis or differential diagnosis through consideration of the signs and symptoms, recognizes the clinical relevance of a particular condition or finding, recognizes the risk factors which may predispose a particular condition, and are able to differentiate between basic patient management strategies that can be employed when working with challenging patients (or in an emergency response situation).
- Indirect assessment of skills learned in the CD department occurs regularly in CE courses and cumulatively within the year-end OSCEs. These skills are also applied to real patients and evaluated within a student's internship

Clinical Competency Evaluation and Workbook

Assessment in the Year IV clinic internship course (CE 4405) is intended to demonstrate knowledge, skills and abilities in situations in, or in close alignment with competencies. Clinical Competency Assessments are demonstrations of competencies in application to real patients and real clinical situations. In Miller's pyramid, this is in the highest level of authenticity, the "Does" category. Eight of these types of assessments are done each 2-month period. The Clinical Competency Assessment assess the following areas: history, examination, case presentation, report of findings, therapeutic care, file audit and two professional conduct.

OSCE assessments take place twice within the clinic year, at the midterm and near the end of the program. These examinations assess clinical skills and problem solving in near-real demonstration of "Shows How", as interns respond in real time to Standardized Patients role-playing various clinical scenarios.

Two written examinations are also performed each year. These examinations contain questions that involve significant application of knowledge to cases, and content based on current literature and Guidelines. These two assessments fit within the "Knows How" level.

The Clinic Management Team (CMT) has long used a benchmarking tool to track intern progress through their experiences within the internship. An important part of the intern learning journey involves seeing enough clinical cases and having enough experiences to become competent in

the skills required to become an entry-to-practice graduate. To assist with managing experiences, CMCC has targeted requirements and experiences that students must meet in order to complete the clinical internship. Monthly reporting allows the Directors of Clinical Education and Patient Care to determine individual plans for interns at risk (interns that are at risk of not completing their requirements and clinical experiences). This may include mentorship or advice on building a clinical practice or result in supplemental clinical placements or experiences to increase the opportunity and clinical exposure for an intern. An additional metric has been developed from this data, entitled Productivity. Each Patient Management Team is reviewed as a practice to determine whether the productivity of that practice is sufficient for all students in the group to meet their benchmarks. This management tool provides each Primary Clinician with a measure that they can manage, over time, in collaboration with CMT.

Quality patient care checks are incorporated into each patient workup in real time, as part of the usual workflow on the clinic floor. When a patient is assessed, each stage of assessment, diagnosis and plan of management is completed by an intern working with a clinician. Each plan of management is constructed with goals and outcomes set for a limited plan of management. At the end of each limited plan of management, a re-evaluation is performed to measure outcomes, assess for improvement, and develop a subsequent plan, if necessary, based on that re-assessment. Each patient case is reviewed on a monthly basis by the intern in a meeting with the supervising clinician, during the month end audit process.

As interns interact with patients on the clinic floor, clinicians observe care, provide oversight, and offer feedback to the interns. This interaction is a quality measure for patients, a feedback opportunity for learners and an assessment of competency. This demonstration of competency in real time for a patient is an important part of the clinic year.

As described in the main body of the Assessment Plan, Year IV students undergo clinical competency evaluations for: history taking, physical examination, report of findings/consent, plan of management, file audit, and two for professionalism. This competency set is completed for each intern during each two-month period across the clinic year.

Appendix 2: Principles of Good Practice for Assessing Student Learning

The American Association of Higher Education's (AAHE) have indicated Nine Principles of Good Practice for Assessing Student Learning. We have combined some of these principles to simplify them down to six. CMCC strives to fully embrace these principles in future assessment planning.

1. The assessment of student learning begins with educational values. Assessment is not an end in itself but a vehicle for educational improvement. Its effective practice, then, begins with and enacts a vision of the kinds of learning we most value for students and strive to help them achieve. Educational values should drive not only what we choose to assess but also how we do so. Where questions about educational mission and values are skipped over, assessment threatens to be an exercise in measuring what's easy, rather than a process of improving what we really care about.

2. Assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time and hence works best when it is ongoing and not episodic. Learning is a complex process. It entails not only what students know but what they can do with what they know; it involves not only knowledge and abilities but values, attitudes, and habits of mind that affect both academic success and performance beyond the classroom. Assessment should reflect these understandings by employing a diverse array of methods, including those that call for actual performance, using them over time so as to reveal change, growth, and increasing degrees of integration. Such an approach aims for a more complete and accurate picture of learning, and therefore firmer bases for improving our students' educational experience.

Assessment is a process whose power is cumulative. Though isolated, "one-shot" assessment can be better than none, improvement is best fostered when assessment entails a linked series of activities undertaken over time. This may mean tracking the process of individual students, or of cohorts of students; it may mean collecting the same examples of student performance or using the same instrument semester after semester.

3. Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes. The purposes are reflective of the course outcomes and graduate competencies, and the student experiences that led to them. Assessment is a goal-oriented process. It entails comparing educational performance with educational purposes and expectations -- those derived from the institution's mission, from faculty intentions in program and course design, and from knowledge of students' own goals. Where program purposes lack specificity or agreement, assessment as a process pushes a campus toward clarity about where to aim and what standards to apply; assessment also prompts attention to where and how program goals will be

taught and learned. Clear, shared, implementable goals are the cornerstone for assessment that is focused and useful.

- 4. Assessment fosters wider improvement when representatives from across the educational community are involved.** Student learning is a campus-wide responsibility, and assessment is a way of enacting that responsibility. Thus, while assessment efforts may start small, the aim over time is to involve people from across the educational community. Faculty play an especially important role, but assessment's questions can't be fully addressed without participation by student-affairs educators, librarians, administrators, and students. Assessment may also involve individuals from beyond the campus (alumni/ae, trustees, employers) whose experience can enrich the sense of appropriate aims and standards for learning. Thus understood, assessment is not a task for small groups of experts but a collaborative activity; its aim is wider, better-informed attention to student learning by all parties with a stake in its improvement.
- 5. Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change.** Assessment alone changes little. Its greatest contribution comes on campuses where the quality of teaching and learning is visibly valued and worked at. On such campuses, the push to improve educational performance is a visible and primary goal of leadership; improving the quality of undergraduate education is central to the institution's planning, budgeting, and personnel decisions. On such campuses, information about learning outcomes is seen as an integral part of decision making, and avidly sought.
- 6. Through assessment, educators meet responsibilities to students and to the public.** There is a compelling public stake in education. As educators, we have a responsibility to the public that support or depend on us to provide information about the ways in which our students meet goals and expectations. But that responsibility goes beyond the reporting of such information; our deeper obligation -- to ourselves, our students, and society -- is to improve. Those to whom educators are accountable have a corresponding obligation to support such attempts at improvement.

Based upon: Alexander A, Banta T, Cross P, et al. Nine principles of good practice for assessing student learning. Modified July 25, 1996. American Association for Higher Education.

Appendix 3. Graduate Competencies for the Doctor of Chiropractic Program

CMCC Graduate Competencies

CMCC Model of Care Statement:

Chiropractic a primary contact health care profession with expert knowledge in spinal and musculoskeletal health, emphasizing differential diagnosis, patient centered care, and research.

Critical Performance Outcome:

Graduates of the CMCC Doctor of Chiropractic program are primary contact health care professionals with expert knowledge in spinal and musculoskeletal health emphasizing differential diagnosis, patient centered care, and research.

Preamble

The Canadian Memorial Chiropractic College has adopted the CanMEDS⁵ educational framework¹ for a competency-based education for its Doctor of Chiropractic Program.

Competency in health professional education is defined as a demonstrable ability of a health professional that develops through stages of expertise from novice to clinician. CMCC's graduate competency framework describes seven roles that will be satisfied through several key competencies. Each of the enabling competencies acts as a potential pathway to ensure that the key competencies are achieved¹.

⁵ Adapted from the CanMEDS Physician Competency Framework with permission of the Royal College of Physicians and Surgeons of Canada. Copyright © 2015

A. Expert in Spinal and Musculoskeletal Health

Definition:

As experts in spinal and musculoskeletal health chiropractors develop, evolve, integrate, and apply evidence based clinical knowledge, skills and attitudes consistent with chiropractic scope of practice.

Key Competencies	Enabling Competencies
Chiropractors are able to:	
<p>1. Formulate differential diagnoses that account for the cause of a patient's complaint(s) and/or abnormal finding(s).</p>	<p>1.1 Obtain a relevant, comprehensive patient history utilizing knowledge of the basic and clinical sciences.</p> <p>1.2 Conduct a skilled and relevant physical examination, with particular emphasis on the musculoskeletal system, while considering patient safety and clinical urgency.</p> <p>1.3 Interpret the information from the History and/or Physical Examination.</p> <p>1.4 Request and/or refer for specialized testing procedures, such as diagnostic imaging and/or clinical laboratory tests, as indicated by the clinical status of the patient.</p> <p>1.5 Interpret relevant specialized testing procedures, such as diagnostic imaging and/or clinical laboratory tests, as indicated by the clinical status of the patient.</p>
<p>2. Develop and deliver an evidence-based patient-centered plan of management.</p>	<p>2.1 Respond reasonably to identified clinical findings suggesting:</p> <ul style="list-style-type: none"> 2.1.1 Direct management 2.1.2 Collaboration 2.1.3 Referral 2.1.4 Emergency Care <p>2.2 Recognize and respond to prognostic factors.</p> <p>2.3 Obtain informed consent from the patient or their substitute decision maker.</p>
<p>3. Demonstrate the proficient use of therapeutic interventions.</p>	<p>3.1 Perform manual (adjustive/manipulative mobilization and/or soft tissue) therapeutic procedures for patient care with modification of treatment parameters to accommodate the particular needs of the patient.</p> <p>3.2 Perform interventions other than manual therapeutic interventions within the scope of chiropractic practice.</p>

B. Communicator

Definition:

As communicators, chiropractors listen, ask, interact, and respond to questions, to determine the patient’s needs, values, and preferences³.

Key Competencies	Enabling Competencies
Chiropractors are able to:	
1. Communicate in a collaborative, responsive, and responsible manner that is meaningful to the recipient.	1.1 Establish rapport and trust with patients and/or other stakeholders, colleagues, and other professionals, in compliance with privacy and other relevant legislation. 1.2 Communicate with external stakeholders and/or the public in a professional manner.
2. Document, maintain, and share written and electronic information about the patient encounter ² .	2.1 Optimize clinical decision-making, patient safety, confidentiality and privacy ⁴ .
3. Obtain appropriate informed consent from the patient or their substitute decision maker.	3.1. Present the report of findings.

C. Collaborator

Definition:

As collaborators, chiropractors understand the scope of practice of other health care professionals and use this to develop relationships “based on trust, respect, and shared decision making”⁵.

Key Competencies	Enabling Competencies
Chiropractors are able to:	
1. Employ knowledge of the chiropractic scope of practice and of other health care professions to promote patient/family and public health goals.	1.1 Promote partnerships with other healthcare professionals in support of the well-being of individual patients.
2. Collaborate on an inter- and intra-professional basis for patient referral and/or co-management, as necessary.	2.1 Make appropriate referrals to other health care professionals for the purpose of requesting diagnostic tests and/or therapeutic care.

D. Health Advocate

Definition:

As health advocates, chiropractors “contribute their expertise and influence as they work with”⁵ patients and other stakeholders, or communities to maintain and/or improve health⁶.

Key Competencies	Enabling Competencies
Chiropractors are able to:	
1. Advocate for health, health promotion, safety, disease prevention, and quality of life for individual patients, and communities.	1.1 Provide advice and patient education for health advocacy subject to scope of practice ⁷ . 1.2 Support the mobilization of resources to effect change ⁶ .

E. Scholar

Definition:

As scholars, chiropractors demonstrate a commitment to lifelong learning, the teaching of others, evaluating evidence and/or contributing to scholarship⁸.

Key Competencies	Enabling Competencies
Chiropractors are able to:	
1. Utilize evidence-based knowledge to promote effective patient-centered care.	1.1 Proficient in knowledge acquisition. 1.2 Practice critical appraisal, application, translation and/or creation of health care knowledge and practice ⁹ . 1.3 Apply principles of knowledge translation (KT) in inter- and/or intra-professional collaboration, and/or patient education, and/or care.

F. Professional

Definition:

As professionals, chiropractors are committed to the health and well-being of individual patients and society through ethical practice, high personal standards of behaviour, accountability to the profession and society, and adherence to regulations¹⁰.

Key Competencies	Enabling Competencies
Chiropractors are able to:	
1. Demonstrate sensitivity to cultural and sociodemographic diversity.	1.1 Provide safe, respectful and inclusive patient care. 1.2 Operate in a harassment free and non-discriminatory manner ^{11,12} .
2. Demonstrate a commitment to the patient, profession and society through ethical behaviour.	2.1 Practice ethically. 2.2 Adhere to the regulations, standards of practice, guidelines, and policy of jurisdiction in which they are practicing.
3. Utilize ethical entrepreneurial skills to develop a chiropractic career.	3.1 Model ethical and legal business practices and policy.
4. Demonstrate knowledge and recognition of the scope of the roles and responsibilities of other health professions.	4.1 Participate effectively in inter- and/or intra-professional activities in a respectful manner.
5. Engage in self-reflection to facilitate continuous improvement.	5.1 Demonstrate continuous improvement in the delivery of patient care, by practicing self-awareness. 5.2 Incorporate ethical behaviour into all interactions with individuals, organizations and communities ¹³ . 5.3 Work effectively and respectfully as a member of an inter-professional team ¹³ .

G. Leader

Definition:

As leaders, chiropractors engage with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities¹⁴.

Key Competencies	Enabling Competencies
Chiropractors are able to:	
1. Improve health care delivery.	1.1 Participate in inter- and/or intra-professional activities. 1.2 Utilize evidence-based knowledge to optimize outcomes. 1.3 Allocate health care resources for optimal patient care.
2. Develop a career plan.	2.1 Employ psychosocial and entrepreneurial skills and concepts. 2.2 Balance professional and personal priorities.

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Appendix 4. Exit Competencies for the Graduate Studies Residency Program

Graduate Studies Competencies

CMCC Model of Care Statement:

Chiropractic is a primary contact health care profession with expert knowledge in spinal and musculoskeletal health, emphasizing differential diagnosis, patient centered care, and research.

Critical Performance Outcome:

Graduates of the Canadian Memorial Chiropractic College (CMCC) Graduate Studies Program are primary contact health care professionals with advanced specialist level knowledge in spinal and musculoskeletal health emphasizing differential diagnosis, patient centered care, teaching, research and consultations.

Our programs (Clinical Sciences, Diagnostic Imaging and Sports Sciences) prepare graduate students to become chiropractic specialists by emphasizing excellence in clinical skills, research, teaching, learning and leadership. Focus is placed on both theory and practice by offering course work and varied multidisciplinary placements that expose graduate students to an advanced mix of clinical experiences.

Preamble

CMCC has adopted CanMEDS educational framework¹ for a competency-based education for both its Doctor of Chiropractic Program and Graduate Studies Program.

Competency in health professional education is defined as a demonstrable ability of a health professional that develops through stages of expertise from novice to clinician to specialist. The Graduate Studies competency framework describes seven roles that will be satisfied through several key competencies. Each of the enabling competencies act as a potential pathway to ensure that the key competencies are achieved.

This CMCC Graduate Studies document was adapted from: Frank, JR, Snell L and Sherbino J eds. The CanMEDS 2015 physician competency framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015. Adapted with permission.

Expert in Spinal and Musculoskeletal Health

Definition: As experts in spinal and musculoskeletal health, chiropractic specialists integrate evidenced based knowledge, clinical skills and a patient centered approach to provide safe and effective management consistent within their specialty area.

Key Competencies	Enabling Competencies
<p>1. Apply knowledge within the expertise of their specialty area</p>	<p>1.1 Apply a broad base and depth of knowledge in clinical and biomedical science to manage the breadth of patient presentations.</p> <p>1.2 Teach aspects of their discipline to students, health care professionals and stakeholders.</p> <p>1.3 Provide expert clinical opinion as pertinent to key stakeholders.</p> <p>1.4 Understand the expert's role related to the provision of advice on clinical matters.</p> <p>1.5 Advise when additional follow up investigations are required in changing clinical circumstances.</p>
<p>2. Perform a patient centered clinical assessment and integrate into the management consistent within their specialty area</p>	<p>2.1 Conduct a clinical assessment when a second opinion is requested or in situations with a high degree of diagnostic uncertainty.</p> <p>2.2 Develop and implement management plans that consider all of the patient's health problems and context, in collaboration with the patient and family and, when appropriate, the interdisciplinary team.</p> <p>2.3 Develop, in collaboration with the patient and family, a plan to deal with clinical uncertainty.</p> <p>2.4 Perform, where appropriate, a procedure in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances.</p>

Communicator

Definition: As communicators, chiropractic specialists effectively synthesize and document the clinical encounter, and communicate to stakeholders in a clear, collaborative, respectful and responsible manner.

Key Competencies	Enabling Competencies
<p>1. Synthesize the clinical encounter to effectively convey patient information to stakeholders</p>	<p>1.1 Integrate, summarize and present the biopsychosocial information obtained from a patient-centred interview.</p> <p>1.2 Manage the flow of challenging patient encounters, including varying attitudes, behaviour and emotions.</p>
<p>2. Communicate in a clear, collaborative, respectful and responsible manner at a specialist level</p>	<p>2.1 Provide information on a patient encounter in a clear, compassionate, respectful and objective manner.</p> <p>2.2 Facilitate discussions with stakeholders in a manner that is respectful, non-judgmental and culturally safe.</p> <p>2.3 Adapt to the unique cultural awareness, needs and preferences of each patient and to their clinical condition and circumstances.</p> <p>2.4 Respond to patients' non-verbal communication and use appropriate non-verbal behaviours to enhance communication with patients.</p>
<p>3. Document, maintain and share written and electronic information at a specialist level</p>	<p>3.1 Adapt written and electronic communication to the specificity of the discipline and to stakeholders' expectations.</p> <p>3.2 Share information with stakeholders in a manner that respects patient privacy and confidentiality and enhances understanding.</p>

Collaborator

Definition: As collaborators, chiropractic specialists develop intra- and interprofessional relationships when appropriate, to provide safe, high-quality, patient centered care.

Key Competencies	Enabling Competencies
<p>1. Forge effective relationships with colleagues, other health care professionals, and the community</p>	<p>1.1 Mentor using constructive feedback and knowledge transfer.</p> <p>1.2 Engage in respectful shared decision-making processes.</p> <p>1.3 Use referral and consultation mechanisms to improve quality of care and enhance patient outcomes.</p>
<p>2. Engage with patients and stakeholders to promote problem-solving, manage differences and resolve conflict</p>	<p>2.1 Implement strategies to promote understanding, manage differences and resolve conflicts in a manner that supports a collaborative culture.²</p> <p>2.2 Demonstrate efficient handover of care, both verbal and written, during patient transitions to a different health care professional, setting and/or stage of care.</p>

Health Advocate

Definition: As health advocates, chiropractic specialists provide expertise and respond to the needs of an individual, communities and/or populations within and beyond the clinical environment to improve health.

Key Competencies	Enabling Competencies
<p>1. Respond to an individual patient’s health needs by advocating with the patient within and beyond the clinical environment ³</p>	<p>1.1 Work with the patient and family to increase opportunities to adopt healthy behaviours.³</p> <p>1.2 Work with the patient and family to identify opportunities for disease prevention, health promotion and health protection.</p> <p>1.3 Understand the impact of societal inequities on the health and well-being of the patient.</p>
<p>2. Respond to the needs of the communities or populations by advocating for system-level change in a socially accountable manner</p>	<p>2.1 Champion health promotion and disease prevention programs relevant to appropriate stakeholders.</p> <p>2.2 Promote evidence-informed public health practices and initiatives.</p>

Scholar

Definition: As scholars, chiropractic specialists engage in self-directed learning and lead in the creation, critical appraisal, application and translation of knowledge into practice.

Key Competencies	Enabling Competencies
<p>1. Engage in self-directed learning within chiropractic, their own specialty and general health field</p>	<p>1.1 Identify opportunities for learning and improvement by regularly reflecting and assessing personal performance using various internal and external sources.⁴</p> <p>1.2 Demonstrate the outcomes of critical self-reflection.</p> <p>1.3 Engage in collaborative learning to continuously improve and contribute to collective improvements in practice.⁴</p>
<p>2. Lead in the creation, critical appraisal, dissemination, application and translation of knowledge and practice</p>	<p>2.1 Critically evaluate the integrity, reliability and applicability of health- related research and literature.⁴</p> <p>2.2 Integrate best evidence and clinical expertise into decision-making in their practice.</p> <p>2.3 Integrate principles of knowledge translation in inter/intra-professional collaboration, patient education, and scholarly activity.</p> <p>2.4 Contribute, synthesize and disseminate research.</p> <p>2.5 Summarize and communicate to professional and public audiences, including patients and their families, the findings of relevant research and scholarly inquiry.⁴</p>

Professional

Definition: As professionals, chiropractic specialists demonstrate commitment to personal health, well-being, professionalism and accountability to the profession. This commitment extends to advancing the health and well-being of patients and society.

Key Competencies	Enabling Competencies
<p>1. Demonstrate a commitment to personal health, well-being and professional performance to foster optimal patient care</p>	<p>1.1 Exhibit self-awareness and effectively manage influences on personal well-being and professional performance.</p> <p>1.2 Promote a culture that recognizes, supports, and responds effectively to stakeholders needs.</p> <p>1.3 Provide mentorship to students and colleagues.</p>
<p>2. Demonstrate a commitment to a culture of patient safety and quality improvement</p>	<p>2.1 Use strategies to mitigate the impact of patient safety incidents.</p> <p>2.2 Adhere to institutional policies and procedures to ensure patient safety and quality of care.</p>
<p>3. Exhibit appropriate professional behaviours and relationships in all aspects of daily encounters</p>	<p>3.1 Recognize ethical issues and conflict of interest encountered in the clinical and academic setting.</p> <p>3.2 Exhibit professional behaviours in the use of technology-enabled communication.⁵</p> <p>3.3 Recognize evolving professional identity transitions.</p>

Leader

Definition: As leaders, chiropractic specialists interact to advance a vision of high-quality health care and the advancement of patient care through their activities as clinicians, administrators, scholars, and/or teachers.

Key Competencies	Enabling Competencies
<p>1. Manage their practice and career</p>	<p>1.1 Build relationships with mentors.</p> <p>1.2 Engage others to develop a culture of continuous practice improvement.</p> <p>1.3 Set priorities and manage time to integrate and balance practice and professional life.</p> <p>1.4 Adjust educational experiences to gain competencies necessary for future independent practice.</p>
<p>2. Contribute to optimal health care delivery</p>	<p>2.1 Analyze and provide feedback on processes seen in one's own practice, team, organization or system.</p> <p>2.2 Use data/health informatics to improve the quality of patient care and optimize patient safety.⁶</p> <p>2.3 Apply evidence and guidelines with respect to resource utilization in common clinical scenarios.</p>
<p>3. Recognize their specialty's governing structure and standards</p>	<p>3.1 Describe key health policies and organizational issues in their specialty.</p> <p>3.2 Contribute to their specialty while understanding their own specialty standards.</p>
<p>4. Advocate for inclusivity in practice and different environments</p>	<p>4.1 Promote a just and equitable culture to openness and inclusivity.</p>

References:

1. Frank, JR, Snell L and Sherbino J eds. The CanMEDS 2015 physician competency framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015. Adapted with permission.
2. Frank, JR, Snell L and Sherbino J eds. The CanMEDS 2015 physician competency framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015. <https://www.royalcollege.ca/rcsite/canmeds/framework/canmeds-role-collaborator-e>
3. Frank, JR, Snell L and Sherbino J eds. The CanMEDS 2015 physician competency framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015. <https://www.royalcollege.ca/rcsite/canmeds/framework/canmeds-role-health-advocate-e>
4. Frank, JR, Snell L and Sherbino J eds. The CanMEDS 2015 physician competency framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015. <https://www.royalcollege.ca/rcsite/canmeds/framework/canmeds-role-scholar-e>
5. Frank, JR, Snell L and Sherbino J eds. The CanMEDS 2015 physician competency framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015. <https://www.royalcollege.ca/rcsite/canmeds/framework/canmeds-role-professional-e>
6. Frank, JR, Snell L and Sherbino J eds. The CanMEDS 2015 physician competency framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015. <https://www.royalcollege.ca/rcsite/canmeds/framework/canmeds-role-leader-e>