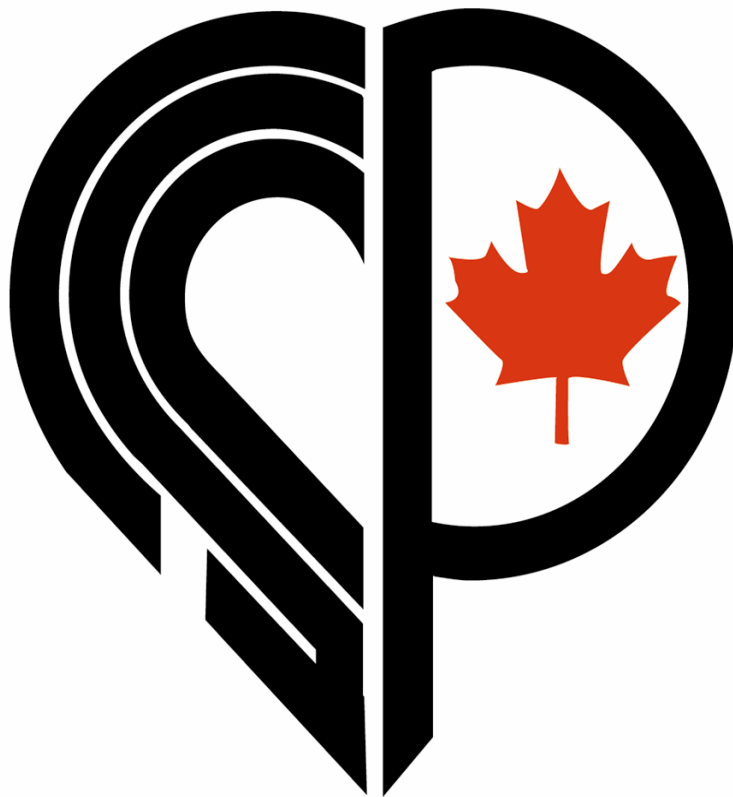

**The Canadian Society of
Clinical Perfusion
La Société Canadienne
de Perfusion Clinique**



**National Entry-Level
COMPETENCY PROFILE
for Clinical Perfusionists**

November 2003



Foreword

There have been significant changes in the Canadian Medical Association's (CMA) methods of accreditation of educational programs in designated health science professions in Canada. These changes have brought about a system of accreditation based on the principal of making the programs more responsive to rapid changes in health care. The philosophy of this system will assess whether programs prepare graduates with the competencies required for entry into designated health professions in Canada.

Each profession affiliated with CMA accreditation is required to complete an entry-level competency profile to fulfill the requirements for the accreditation standards. The Competency Profile is to focus on outcomes rather than content.

The CSCP Entry-Level Competency Profile for Clinical Perfusionists is the second profile developed by the Canadian Society of Clinical Perfusion (CSCP). The first Profile was developed in 1996 and this second Profile was completed in 2003. The work was made possible by financial assistance from the CSCP and Human Resources Development Canada (HRDC). The main body of the work was carried out by the Competency Development Group (seven content experts representing pediatric and adult based perfusion, management and education across all Canadian regions) in collaboration with Jan White Consulting. This work required review of all the following documents made available through the CSCP:

- CSCP National Entry Level Competency Profile for Clinical Perfusionists (1997)
- Report on the Competency Profile for Clinical Perfusionists (November 1996)
- CSCP Recommended Basis Standards of Practice of Clinical Perfusion (2002)
- Mission Statement/Code of Ethics
- Role of the Clinical Perfusionist in Canada (2001)
- Cariboo College Didactic Summary
- Course Curricula for Michener Institute
- Comments from the Clinical Perfusionist Competency Project (1996) respondents
- Comments from students challenging previous exams
- Examination Questionnaires

The National survey result is a list of ninety-one (91) entry level competencies for clinical perfusion in Canada. This profile is a dynamic document which will be under regular review by the Accreditation, Competency and Examination Committee (ACE) of the CSCP. The profile consists of six competency categories.

The CSCP National Certification Examination Blueprint and the CSCP National Certification Examination for clinical perfusionists will contain questions developed from information directly linked to this profile. These documents will change as changes in health care occur in Canada.



ASSUMPTIONS ABOUT THE ENTRY- LEVEL CLINICAL PERFUSIONIST AND THE PRACTICE OF CLINICAL PERFUSION

The Entry-Level Clinical Perfusionist
Has successfully completed a Canadian Medical Association (CMA) accredited training program and is eligible for the Canadian Society of Clinical Perfusion (CSCP) national certification examinations.
Has developed in-depth knowledge of adult and pediatric cardiovascular anatomy, physiology, and pathophysiology, and extracorporeal circulation technology including adjunctive techniques.
Has acquired knowledge in the following areas in relation to clinical perfusion: <ul style="list-style-type: none">• anatomy and physiology;• pathophysiology;• pharmacology;• applied sciences (e.g., biochemistry, physics);• hematology;• computer technology; and• research methodology.
Practises under the direction of and in consultation with the physician(s).
Is proficient in operating and monitoring extracorporeal circulation and cardiopulmonary support systems.
Is familiar with and/or has had exposure to ancillary devices (e.g., blood gas analyzers, autotransfusion devices, etc).
Anticipates and responds appropriately to potentially serious situations involving the patient and technical problems that may arise. A high degree of discretion and judgement is essential as perfusionists often make immediate and independent critical decisions to ensure patient safety.
Pursues continuous professional education as required by the CSCP for recertification and by using personal initiative to improve practice.
Practises in accordance with departmental/institutional policies/protocols and provincial legislation (e.g., transfer of functions through delegated medical acts, controlled acts, etc).
Has a professional responsibility to abide by the Code of Ethical Conduct and Recommended Basic Standards of Practice of the CSCP.
Is an integral member of the health care team who shares knowledge, promotes learning, and collaborates with other professionals in providing optimal patient care.
Maintains a professional relationship with patients, families, and colleagues through the use of effective interpersonal and communication skills.



Contributes to the health care education of the patient, family, and public.
Respects the dignity and confidentiality of the patient and family.
Respects the patient's right to refuse treatment.
Recognizes that clinical competency directly affects the patient's outcome.
The Patient/Family
The patient is one of any age who is experiencing an actual or potential life-threatening health crisis that requires the services of an entry-level clinical perfusionist.
The family or designate is identified to be an important participant in the patient's care.
The Environment
The entry-level clinical perfusionist is prepared to work in a variety of settings including, but not limited to, health care and educational institutions.
The entry-level clinical perfusionist works in an environment that is dynamic and evolving. The entry-level clinical perfusionist must be prepared to work long, unpredictable hours under intense stress.
The entry-level clinical perfusionist is frequently exposed to potentially hazardous chemicals, blood, and other body fluids.



COMPETENCY CATEGORIES AND THEIR DEFINITIONS

Safe Work Practice	The clinical perfusionist practises according to established protocols, safety guidelines, and existing legislation to maintain a safe work environment.
Data Management	The clinical perfusionist collects, interprets, and evaluates hematological, physiological, and biochemical data on an ongoing basis to promote optimal patient care.
Technical Expertise (Indirect Patient Application)	The clinical perfusionist utilizes technical expertise to assemble and prepare cardiopulmonary support systems and ancillary devices to provide quality patient care according to established protocols and professional practice.
Clinical Practice (Direct Patient Application)	<p>The clinical perfusionist, in consultation with the physician(s), operates, manages, and troubleshoots cardiopulmonary support systems and ancillary devices to provide quality patient care according to established protocols.</p> <p>The clinical perfusionist manages the patient's altered physiological functions throughout the procedure.</p>
Quality Assurance	The clinical perfusionist participates in and promotes a quality assurance program within the workplace.
Professional Responsibilities	<p>The clinical perfusionist adheres to the Recommended Basic Standards of Practice of Clinical Perfusion and the code of Ethical Conduct as put forth by the CSCP.</p> <p>The clinical perfusionist adheres to the legal and ethical requirements of practice and protects the patient's right to quality care.</p> <p>The clinical perfusionist is an essential member of the interdisciplinary team who shares and promotes knowledge through education and research, in collaboration with other health care professionals.</p>



CLINICAL PERFUSIONIST COMPETENCY PROFILE

Safe Work Practice
SWP01: Maintains a safe and organized work area (e.g., equipment, environment, etc).
SWP02: Documents and reports unsafe situations (e.g., equipment, environment, etc).
SWP03: Practises aseptic and sterile technique.
SWP04: Applies the principles of universal precautions (e.g., use of gloves, gowns, mask, face shields, etc).
SWP05: Handles and disposes of blood and body fluids.
SWP06: Handles bio-hazardous materials (e.g., inhalation agents, chemotherapeutic agents, etc).
SWP07: Handles and disposes of “sharps.”
SWP08: Disassembles, cleans, disinfects, and stores equipment.
Data Management
DM01: Collects and analyzes data from patient records relevant to planning and implementing perfusion techniques.
DM02: Collects, interprets, and evaluates physiological data (e.g., hemodynamics, fluid status, temperatures, etc).
DM03: Documents pertinent patient data and perfusion interventions (e.g., perfusion record, etc).
DM04: Collects, interprets, and utilizes clinical data (e.g., patient demographics, data base, etc).



Technical Expertise

TE01: Selects, in consultation with the physician, the appropriate medical equipment, supplies, and techniques to meet patient requirements.

TE02: Assembles and prepares cardiopulmonary bypass systems (CPB) (e.g., cannulae, circuitry, oxygenator, etc).

TE03: Assembles and prepares blood pumps including centrifugal pumps.

TE04: Assembles and prepares blood pumps including roller pumps.

TE05: Assembles and prepares oxygenation devices.

TE06: Assembles and prepares gas delivery devices.

TE07: Assembles and prepares oxygen analyzing devices.

TE08: Assembles and prepares myocardial preservation devices.

TE09: Assembles and prepares safety devices.

TE10: Assembles and prepares temperature control units.

TE11: Assembles and prepares in-line monitoring devices.

TE12: Assembles and prepares blood analyzers (e.g., blood gas machine, etc).

TE13: Assembles and prepares filters.

TE14: Assembles and prepares reservoirs.

TE15: Assembles and prepares anticoagulation monitoring devices (e.g., ACT machine, etc).

TE16: Assembles and prepares ultrafiltration devices.



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TE17: Assembles and prepares hemodialyzers.
TE18: Assembles and prepares hemodynamic monitoring devices.
TE19: Assembles and prepares intra-aortic balloon pumps.
TE20: Assembles and prepares autologous blood processing devices including cell salvage.
TE21: Assembles and prepares autologous blood processing devices including blood sequestration and platelet gel.
TE22: Assembles and prepares extracorporeal life support (ECLS) (i.e., veno-arterial cardiopulmonary support).
TE23: Assembles and prepares extracorporeal membrane oxygenation systems (ECMO) (i.e., veno-venous pulmonary support).
TE24: Assembles and prepares left ventricular assist devices (LVAD).
TE25: Assembles and prepares right ventricular assist devices (RVAD).
TE26: Assembles and prepares left atrial to femoral artery bypass systems (LAFA).
TE27: Assembles and prepares ancillary equipment for off-pump coronary bypass procedures (OPCAB).
Clinical Practice
CP01: Operates cardiopulmonary bypass systems (CPB).
CP02: Operates blood pumps including centrifugal pumps.
CP03: Operates blood pumps including roller pumps.
CP04: Operates oxygenation devices.
CP05: Operates gas delivery devices.
CP06: Operates oxygen analyzing devices.
CP07: Operates myocardial preservation devices.
CP08: Operates safety devices.
CP09: Operates temperature control devices.
CP10: Operates temperature monitoring devices.
CP11: Interprets and responds to perfusion system parameters (e.g., pressures, flow, volume, temperatures, etc).
CP12: Procures, interprets, and responds appropriately to blood analysis results (e.g., anticoagulation, acid-base balance, hematology, etc).
CP13: Determines and utilizes the appropriate priming solutions (e.g., crystalloid, blood, pharmacological agents, etc).
CP14: Handles and stores blood products according to established protocols.
CP15: Administers blood products according to established protocols.
CP16: Determines and administers agents via the extracorporeal circuit (e.g., pharmacological agents, solutions, etc).



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CP17: Performs relevant calculations (e.g., blood volumes, BSA, flow rates, pharmacological agents, etc).
CP18: Operates in-line monitoring devices.
CP19: Operates blood analyzers (e.g., blood gas machine, etc).
CP20: Monitors various filters.
CP21: Monitors reservoirs.
CP22: Operates anticoagulation monitoring devices.
CP23: Operates ultrafiltration devices.
CP24: Operates hemodialyzers.
CP25: Operates various hemodynamic monitoring devices.
CP26: Responds to emergencies and/or unusual situations (e.g., redo, unstable patient, etc).
CP27: Assists with the evaluation of patient outcome and recognizes the need for further intervention.
CP28: Operates intra-aortic balloon pumps.
CP29: Operates autologous blood processing devices including cell salvage.
CP30: Operates autologous blood processing devices including blood sequestration and platelet gel.
CP31: Initiates prompt, accurate intervention when a change in patient status and/or perfusion system is detected including emergency situations.
CP32: Troubleshoots and resolves equipment malfunctions in a timely manner.
CP33: Communicates effectively during the procedure with all members of the health care team.
CP34: Operates extracorporeal life support (ECLS) (i.e., veno-arterial cardiopulmonary support).
CP35: Operates extracorporeal membrane oxygenation systems (ECMO) (i.e., veno-venous pulmonary support).
CP36: Operates left ventricular assist devices (LVAD).
CP37: Transports the patient requiring cardiopulmonary support (e.g., IABP, ECMO, LVAD, etc) within the hospital.
CP38: Operates left atrial to femoral bypass systems (LAFA).
CP39: Ensures the integrity and safety of the circuit.
CP40: Adapts circuitry and techniques for unusual situations (e.g., aortic arch replacement, cerebral aneurysm, etc).
CP41: Participates in the implementation and management of deep hypothermia and circulatory arrest (DHCA) without supplemental cerebral perfusion.
CP42: Participates in the implementation and management of the treatment of accidental hypothermia (e.g., near drowning, cold exposure, etc).



Quality Assurance
QA01: Follows established institutional and departmental protocols, policies, and procedures.
QA02: Participates in routine maintenance, calibration, and inspections of perfusion-related equipment.
QA03: Performs quality control procedures on equipment.



CLINICAL PERFUSIONIST COMPETENCY PROFILE

Professional Responsibilities

PR01: Adheres to the Recommended Basic Standards of Practice of Clinical Perfusion as put forth by the CSCP (e.g., recognizes personal limitations, delegates tasks, etc).

PR02: Adheres to the Code of Ethical Conduct as outlined by the CSCP (e.g., reports limitations of others, issues of confidentiality, beliefs, dignity, rights, etc).

PR03: Promotes the discipline of perfusion through involvement in professional activities (e.g., institutional, regional, and national committees, organizations, recertification process, etc).

PR04: Communicates effectively and collaborates with other health care professionals.

PR05: Recognizes that clinical perfusion is an evolving profession, and applies new knowledge and skills, and technological innovations to practice (e.g., application of research findings, computer skills, etc).

PR06: Participates in the evaluation of new equipment and techniques as necessary.

PR07: Pursues opportunities for ongoing education, self-development, and professional growth.