



Canadian Society for Medical Laboratory Science  
Société canadienne de science de laboratoire médical

# Competency Profile

## Medical Laboratory Assistant

Competencies Expected of an Entry-Level  
Medical Laboratory Assistant

**January 2016**

Effective with the June 2018 Examination

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## Code of Professional Conduct

- Medical laboratory professionals are dedicated to serving the health care needs of the public. The welfare of the patient and respect for the dignity of the individual shall be paramount at all times.
- Medical laboratory professionals work with other health care professionals, to provide effective patient care.
- Medical laboratory professionals shall promote the image and status of their profession by maintaining high standards in their professional practice and through active support of their professional bodies.
- Medical laboratory professionals shall protect the confidentiality of all patient information.
- Medical laboratory professionals shall take responsibility for their professional acts.
- Medical laboratory professionals shall practise within the scope of their professional competence.
- Medical laboratory professionals shall endeavour to maintain and improve their skills and knowledge and keep current with scientific advances. They will uphold academic integrity in all matters of professional certification and continuing education.
- Medical laboratory professionals shall share their knowledge with colleagues and promote learning.
- Medical laboratory professionals shall be aware of the laws and regulations governing medical laboratory technology and shall apply them in the practice of their profession.
- Medical laboratory professionals shall practise safe work procedures at all times to ensure the safety of patients and co-workers and the protection of the environment.

November 2011

## Examination Blueprint

CSMLS MLA exams are based on this plan

CSMLS MLA Exam Panel to Revise following Final Acceptance and Approval

| Categories  | Competencies   | Mark % |
|---|--|--------|
| 1. <b>Safe Work Practices</b>                       | 1.02, 1.03, 1.04, 1.05, 1.06, 1.07, 1.08, 1.09, 1.10, 1.11, 1.12, 1.13, 1.14, 1.15             | 10-15% |
| 2. <b>Data and Specimen Collection and Handling</b> | 2.01, 2.02, 2.03, 2.04, 2.05, 2.06, 2.07, 2.08, 2.09, 2.10, 2.11, 2.12, 2.13, 2.14, 2.15, 2.16 | 45-60% |
| 3. <b>Pre-analytical Procedures</b>                 | 3.01, 3.02, 3.03, 3.04   | 15-20% |
| 4. <b>Reagent Preparation</b>                       | 4.01, 4.02, 4.03   | 2-4%   |
| 5. <b>Communication and Interaction</b>             | 5.01, 5.02, 5.03, 5.04   | 2-4%   |
| 6. <b>Quality Management</b>                        | 6.01, 6.02, 6.03, 6.04, 6.05, 6.06, 6.07, 6.08, 6.09, 6.10, 6.11, 6.12, 6.13                   | 2-4%   |
| 7. <b>Professional Practice</b>                     | 7.01, 7.02, 7.03, 7.04, 7.05, 7.06, 7.07, 7.08, 7.09, 7.10, 7.11, 7.12, 7.13                   | 5-10%  |
| 8. <b>Critical Thinking</b>                         | 8.01, 8.02, 8.03, 8.04, 8.05, 8.06, 8.07, 8.08   | 5-10%  |

## Assumptions About Medical Laboratory Assistants

|   |
|---|
| <b>The Medical Laboratory Assistant:</b>  |
| <p>Upon completion of a Canadian Medical Association accredited training program or deemed eligible through a CSMLS Prior Learning Assessment;</p> <ul style="list-style-type: none"><li>• Has developed a broad knowledge base and practical skills enabling the procurement and preparation of specimens for analysis according to institutional policies and professional standards</li><li>• Applies critical thinking and problem solving strategies to ensure best practices</li><li>• Practises and promotes the principles of quality management</li><li>• Practises to ensure the safety of patients, colleagues, self, and the environment</li><li>• Contributes to the health care and education of the public, promotes patient welfare and respects patient diversity, dignity, and confidentiality</li><li>• Is an integral member of the health care team who shares knowledge, promotes learning, and collaborates with other professionals in providing effective patient care</li><li>• Is responsible and accountable for professional acts and practises according to standards of practice as well as laws and regulations governing the profession</li><li>• Abides by the CSMLS Code of Professional Conduct</li><li>• Uses effective interpersonal skills to maintain a professional relationship with colleagues, patients/clients and health care professionals</li></ul> |
| <b>The Client/Patient:</b>  |
| <ul style="list-style-type: none"><li>• Is any individual who interacts with the medical laboratory assistant, e.g. patient, patient representative, health care professionals and other laboratory professionals</li></ul>   |
| <b>The Environment:</b>   |
| <ul style="list-style-type: none"><li>• The medical laboratory assistant is prepared to work in a variety of settings</li><li>• The medical laboratory assistant practises in a safe environment that is dynamic and evolving</li></ul>   |

## MLA Competency Categories

|  |  |
|--|--|
| <p><b>1. Safe Work Practices</b></p>                       | <p>The medical laboratory assistant conducts their professional practice according to established protocols, safety guidelines, and existing legislation.</p>  |
| <p><b>2. Data and Specimen Collection and Handling</b></p> | <p>The medical laboratory assistant verifies relevant data and ensures that appropriate specimens are collected and handled according to established protocols.</p>  |
| <p><b>3. Pre-analytical Procedures</b></p>                 | <p>The medical laboratory assistant performs pre-analytical procedures on specimens from a variety of sources according to established protocols.</p>  |
| <p><b>4. Reagent Preparation</b></p>                       | <p>The medical laboratory assistant uses laboratory equipment and instruments to prepare reagents according to established protocols.</p>  |
| <p><b>5. Communication and Interaction</b></p>             | <p>The medical laboratory assistant interacts with patients/clients and other health care professionals using effective communication, teamwork skills and inter-professional collaboration.</p>   |
| <p><b>6. Quality Management</b></p>                        | <p>The medical laboratory assistant practises and promotes the principles of quality management.</p>   |
| <p><b>7. Professional Practice</b></p>                     | <p>The medical laboratory assistant meets the legal and ethical requirements of practice and protects the patient's right to a reasonable standard of care. Professional responsibility encompasses scope of practice, accountability, and professional development.</p> |
| <p><b>8. Critical Thinking</b></p>                         | <p>The medical laboratory assistant applies critical thinking skills to constructively investigate, evaluate and problem solve.</p>  |

## Category 1 Safe Work Practices

The medical laboratory assistant conducts professional practice according to established protocols, safety guidelines, and existing legislation.

| Number | Competency  |
|--------|---|
| 1.01   | Applies the principles of routine practices   |
| 1.02   | Uses personal protective equipment, e.g. gloves, gowns, mask, face shields, aprons  |
| 1.03   | Applies laboratory hygiene and infection control practices  |
| 1.04   | Minimizes possible dangers from biological specimens, laboratory supplies and equipment   |
| 1.05   | Uses laboratory safety devices, e.g. biological safety cabinet, fume hood, laminar flow cabinet, safety pipetting device, safety container and carrier, safety shower, eye wash station |
| 1.06   | Labels, dates, handles, stores and disposes chemicals, dyes, reagents and solutions according to legislation, e.g. WHMIS  |
| 1.07   | Handles and disposes sharps   |
| 1.08   | Stores, handles, transports and disposes biological and other hazardous materials according to legislation  |
| 1.09   | Uses disinfection and sterilization methods   |
| 1.10   | Minimizes potential hazards related to disinfection/sterilization methods   |
| 1.11   | Applies measures in response to laboratory accidents/incidents  |
| 1.12   | Applies spill containment and clean up procedures for biological and other hazardous materials  |
| 1.13   | Responds appropriately to workplace emergencies   |
| 1.14   | Reports and documents all incidents related to safety and personal injury   |
| 1.15   | Applies proper ergonomic principles to minimize risk of injury (new)  |

## Category 2

### Data and Specimen Collection and Handling

The medical laboratory assistant verifies relevant data and ensures that appropriate specimens are collected and handled according to established protocols.

| Number | Competency   |
|--------|--|
| 2.01   | Demonstrates fundamental knowledge of medical terminology, physiology, anatomy and disease processes   |
| 2.02   | Verifies relevant information is provided for test request   |
| 2.03   | Provides information to the client on specimen collection, transportation and storage  |
| 2.04   | Confirms the identity of the patient and performs venipuncture and capillary blood collection to obtain appropriate samples for laboratory analysis                  |
| 2.05   | Performs sample collection and chain of custody procedures relating to specimens with legal implications   |
| 2.06   | Adheres to established protocols for labeling and traceability of specimens  |
| 2.07   | Delivers specimens taking into account priority and stability  |
| 2.08   | Assesses specimen suitability for testing  |
| 2.09   | Verifies that the pertinent data on the specimen and requisition correspond  |
| 2.10   | Accessions specimens into laboratory information systems   |
| 2.11   | Adheres to guidelines for specimen retention, storage, transportation and disposal   |
| 2.12   | Prepares specimens for analysis  |
| 2.13   | Identifies, documents and initiates corrective action for pre-examination (pre-analytical) errors  |
| 2.14   | Prepares documentation, packages specimens for shipping, seals and labels shipping containers in accordance with Transportation of Dangerous Goods (TDG) regulations |
| 2.15   | Describes the role of the laboratory in point-of-care testing (new)  |
| 2.16   | Performs point-of-care techniques, identifies sources of interference and initiates corrective action as delegated (new)   |

## Category 3

### Pre-analytical Procedures

The medical laboratory assistant performs pre-analytical procedures on specimens from a variety of sources according to established protocols.

| Number | Competency   |
|--------|--|
| 3.01   | Loads specimens for analysis on laboratory equipment   |
| 3.02   | Prepares smears manually or using automated equipment  |
| 3.03   | Performs routine staining and cover slipping either manually or using automated equipment, e.g. Jenner-Giemsa, Gram, Wright, Hematoxylin and Eosin, Papanicolaou, Leishman |
| 3.04   | Selects appropriate culture media, inoculates and incubates specimens using aseptic technique  |



## Category 4 Reagent Preparation

The medical laboratory assistant uses laboratory equipment and instruments to prepare reagents according to established protocols.

| Number | Competency  |
|--------|---|
| 4.01   | Prepares/stores reagents, solutions, stains or media to specifications <ul style="list-style-type: none"><li>• Performs calculations/dilutions for reagent preparation</li></ul> |
| 4.02   | Uses reagent preparation equipment, e.g. pH meter, balance, autoclave   |
| 4.03   | Cleans glassware according to specifications  |

## Category 5 Communication and Interaction

The medical laboratory assistant interacts with patients/clients and other health care professionals using effective communication, teamwork skills and inter-professional collaboration.

| Number | Competency   |
|--------|--|
| 5.01   | Practises effective communication with colleagues, patients/clients and other health care professionals: <ul style="list-style-type: none"> <li>• Active listening</li> <li>• Verbal communication</li> <li>• Non-verbal communication</li> <li>• Written communication</li> <li>• Conflict management</li> <li>• Identifies barriers to effective communication</li> <li>• Uses technology appropriately to facilitate communication</li> </ul> |
| 5.02   | Demonstrates effective teamwork skills   |
| 5.03   | Demonstrates interdisciplinary/interprofessional team skills: <ul style="list-style-type: none"> <li>• Communication</li> <li>• Collaboration</li> <li>• Role clarification</li> <li>• Reflection</li> </ul>   |
| 5.04   | Demonstrates adaptive skills when interacting with patients/clients  |

## Category 6 Quality Management

The medical laboratory assistant practises and promotes the principles of quality management systems.

| Number | Competency  |
|--------|---|
| 6.01   | Demonstrates knowledge of quality systems essentials (QSE)  |
| 6.02   | Follows established protocols as defined in policy, process and procedure manuals   |
| 6.03   | Prepares and runs quality controls/standards on equipment, to be validated by a medical laboratory technologist (new)     |
| 6.04   | Assists in updating procedures and protocols, as well as other reference information and communication                    |
| 6.05   | Participates in workflow analysis to identify issues and solve problems   |
| 6.06   | Identifies, documents and reports deficiencies that may affect the quality of testing (new)                               |
| 6.07   | Performs and documents preventative maintenance and reagent changes, according to established protocols                   |
| 6.08   | Recognizes malfunctions in equipment/instruments, initiates and documents corrective action                               |
| 6.09   | Participates in continuous quality improvement activities (new)   |
| 6.10   | Demonstrates knowledge of risk management (new)   |
| 6.11   | Participates in internal and external quality assurance activities, e.g. proficiency testing, audits, accreditation (new) |
| 6.12   | Demonstrates knowledge of inventory maintenance   |
| 6.13   | Demonstrates information management skills, e.g. computer, laboratory information systems and related technology          |

## Category 7

### Professional Practice

The medical laboratory assistant meets the legal and ethical requirements of practice and protects the patient's right to a reasonable standard of care. Professional responsibility encompasses scope of practice, accountability, and professional development.

| Number | Competency   |
|--------|--|
| 7.01   | Maintains confidentiality of health care information   |
| 7.02   | Complies with legislations that govern the medical laboratory profession   |
| 7.03   | Recognizes limitations of own competence and seeks action to resolve   |
| 7.04   | Obtains informed consent prior to procedure and respects a patient's right to refuse   |
| 7.05   | Recognizes potentially dangerous situations and understands the right to refuse unsafe work  |
| 7.06   | Takes responsibility and is accountable for professional actions   |
| 7.07   | Recognizes the need for and participates in continuing education and training  |
| 7.08   | Promotes the image and status of the profession of medical laboratory science as members of the health care team   |
| 7.09   | Recognizes how ethical issues in the health care environment affect the medical laboratory assistant and clients   |
| 7.10   | Demonstrates knowledge of the health care system, professional laboratory organizations and their responsibilities   |
| 7.11   | Demonstrates knowledge of the determinants of health and their implications for the laboratory system (new)  |
| 7.12   | Respects the diversity, dignity, values, and beliefs of patients/clients and colleagues  |
| 7.13   | Demonstrates knowledge of interpersonal skills: <ul style="list-style-type: none"> <li>• Recognizes signs of individual and group stress</li> <li>• Recognizes signs of patient stress</li> <li>• Exhibits empathy when assisting patients and colleagues</li> </ul> |

## Category 8 Critical Thinking

The medical laboratory assistant applies critical thinking skills to constructively investigate, evaluate and problem solve.

| Number | Competency   |
|--------|--|
| 8.01   | Demonstrates knowledge of a dynamic environment; adapts and responds to change   |
| 8.02   | Recognizes that change initiated in one area may impact other areas of health care services  |
| 8.03   | Engages in reflective practice; stops and thinks about practice, consciously analyzes decision making and draws conclusions to improve future practice (new) |
| 8.04   | Organizes work to accommodate priorities   |
| 8.05   | Maximizes efficient use of resources, e.g. time, equipment, personnel  |
| 8.06   | Demonstrates effective problem solving/trouble-shooting strategies and initiates appropriate follow up (new)   |
| 8.07   | Contributes to implementation strategies that integrate timelines, resource management and communication related to projects or research/studies (new)       |
| 8.08   | Demonstrates the ability to make evidence-based decisions (new)  |

## CSMLS Acronyms & Definitions – MLA

### Acronymes et définitions de la SCSLM - ALM

| English |                                       | Français  |         |
|---------|---------------------------------------|---|---------|
| ALP     | Alkaline Phosphatase                  | Phosphatase alcaline  | ALP/PAL |
| ALT     | Alanine Aminotransferase              | Alanine aminotransférase  | ALT     |
| APTT    | Activated partial thromboplastin time | Temps de thromboplastine partielle activée<br>Temps de céphaline activé | TCA     |
| ASAP    | As Soon As Possible                   | Dès que possible  | -----   |
| AST     | Aspartate Aminotransferase            | Aspartate aminotransférase  | AST     |
| BUN     | Blood Urea Nitrogen                   | Azote uréique sanguin   | ---/BUN |
| C & S   | Culture & Sensitivity                 | Culture et antibiogramme  | -----   |
| CAMP    | Christie, Atkins, and Munch-Petersen  | Test Christie, Atkins et Munch-Petersen                                 | CAMP    |
| CBC     | Complete blood count                  | Formule sanguine complète   | FSC     |
| CFU     | Colony forming Unit                   | Unité formant colonie   | UFC     |
| CIN     | Cefsulodin-Irgasan-Novobiocin Agar    | Gélose Cefsulodine-Irgasan-Novobiocine                                  | CIN     |
| CK      | Creatine Kinase                       | Créatine kinase   | CK      |
| CMV     | Cytomegalovirus                       | Cytomégalovirus   | CMV     |
| CNA     | Colistin Nalidixic Acid agar          | Gélose Colistine et Acide nalidixique                                   | CNA     |
| COPD    | Chronic Obstructive Pulmonary Disease | Maladie pulmonaire obstructive chronique                                | MPOC    |
| CSF     | Cerebrospinal fluid (SF)              | Liquide céphalorachidien  | LCR     |
| DAT     | Direct antiglobulin test              | Test à l'antiglobuline direct (Coombs direct)                           | TAD     |
| DNA     | Deoxyribonucleic Acid                 | Acide désoxyribonucléique   | ADN     |
| DNR     | Do not resuscitate order              | Ordre de ne pas réanimer  | DNR     |
| EDTA    | Ethylenediamine tetraacetic acid      | Éthylène diamine tétraacétate   | EDTA    |
| ERC     | Erythrocyte                           | Érythrocyte / Globule rouge   | GR      |
| ESR     | Erythrocyte sedimentation rate        | Vitesse de sédimentation érythrocytaire                                 | VSE     |
| FOB     | Faecal Occult Blood                   | Sang occulte dans les selles  | -----   |

|       |  |   |         |
|-------|--|---|---------|
| G6PD  | Glucose-6-phosphate                            | Glucose-6-phosphate                               | G6PD    |
| GGT   | Gamma-glutamyl Transferase                     | Gamma-glutamyl transférase                        | GGT     |
| GHS   | Globally Harmonized System (in place of WHMIS) | Système général harmonisé (remplace SIMDUT)       | SGH     |
| GTT   | Glucose Tolerance Test                         | Hyperglycémie provoquée <i>per os</i>             | HGPO    |
| H&E   | Hematoxylin and eosin                          | Hématoxyline et éosine                            | H&E     |
| HbA1C | Hemoglobin A1c, glycated hemoglobin            | Hémoglobine A1c, hémoglobine glyquée              | HbA1c   |
| HCG   | Human Chorionic Gonadotrophia                  | Gonadotrophine chorionique humaine                | HCG     |
| HCT   | Hematocrit                                     | Hématocrite                                       | Ht      |
| HDL   | High-density Lipoprotein                       | Lipoprotéine de haute densité                     | HDL     |
| HDN   | Hemolytic disease of the newborn               | Maladie hémolytique du nouveau-né                 | MHNN    |
| HGB   | Hemoglobin                                     | Hémoglobine                                       | Hb      |
| HIV   | Human Immunodeficiency Virus                   | Virus de l'immunodéficience humaine               | VIH     |
| IAT   | Indirect antiglobulin test                     | Test à l'antiglobuline indirect (Coombs indirect) | TAI     |
| INR   | International normalized ratio                 | Rapport international normalisé                   | RNI     |
| LAP   | Leukocyte alkaline phosphatase                 | Phosphatase alcaline leucocytaire                 | PAL     |
| LD    | Lactate dehydrogenase                          | Lactate-déshydrogénase                            | LD      |
| LDL   | Low-density Lipoprotein                        | Lipoprotéine de basse densité                     | LDL     |
| LIS   | Laboratory information system                  | Système d'information de laboratoire              | SIL     |
| LKS   | Leukocytes                                     | Leucocytes / Globule blanc                        | GB      |
| MCH   | Mean corpuscular hemoglobin                    | Teneur globulaire moyenne en hémoglobine          | TGMH    |
| MCHC  | Mean corpuscular hemoglobin concentration      | Concentration- globulaire moyenne en hémoglobine  | CGMH    |
| MCV   | Mean corpuscular volume                        | Volume globulaire moyen                           | VGM     |
| MSDS  | Material Safety Data Sheet                     | Fiche signalétique                                | FS      |
| NPO*  | Nothing by mouth                               | Ne rien administrer par voie orale                | NPO*    |
| NRBC  | Nucleated red blood cell                       | Globule rouge nucléé / érythroblaste              | -----   |
| ONPG  | Ortho-nitrophenyl B-galactopyranoside          | Ortho-nitrophénol B-galactopyranoside             | ONPG    |
| PCR   | Polymerase chain reaction                      | Réaction en chaîne de la polymérase               | PCR     |
| PEA   | Phenylethyl Alcohol Agar                       | Gélose Phényl Éthyle Alcool                       | PEA     |
| PKU   | Phenylketonuria                                | Phénylcétonurie                                   | PKU/PCU |
| PLT   | Platelet                                       | Plaquette   | Plaq    |
| POCT  | Point of Care Testing                          | Analyse hors-laboratoire                          | AHL     |

|                |  |   |           |
|----------------|--|---|-----------|
| PPE            | Personal Protective Equipment                    | Équipement de protection individuelle                                   | EPI       |
| PST            | Plasma Separator Tube                            | Tube avec gel séparateur de plasma                                      | PST       |
| PT             | Prothrombin time                                 | Temps de prothrombine/Temps de Quick                                    | TP/TQ     |
| O&P            | Ova and Parasites                                | Recherche de parasites (oeufs et vers)                                  | -----     |
| QA             | Quality assurance                                | Assurance de la qualité   | AQ        |
| QC             | Quality control                                  | Contrôle de la qualité  | CQ        |
| RBC            | Red blood cell                                   | Globule rouge   | GR        |
| RDW            | Red cell distribution width                      | Indice de distribution du volume érythrocytaire                         | IDVE      |
| RNA            | Ribonucleic Acid                                 | Acide ribonucléique   | ARN       |
| SAF            | Sodium acetate fixative                          | fixateur acétate de sodium, acide acétique, formaline                   | SAF       |
| SD             | Standard deviation                               | Écart-type  | ---/SD    |
| SOP            | Standard operating procedure                     | Procédure opérationnelle normalisée                                     | PON       |
| SPS            | Sodium polyanethol sulphonate                    | Polyanétholsulfonate de sodium  | SPS       |
| STAT**         | Immediately                                      | Immédiatement   | STAT**    |
| SST            | Serum Separator Tube                             | Tube avec gel séparateur de sérum                                       | SST       |
| T <sub>3</sub> | Triiodothyronine                                 | Triiodothyronine  | T3        |
| T <sub>4</sub> | Thyroxine  | Thyroxine   | T4        |
| TB             | Tuberculosis                                     | Tuberculose   | BK        |
| TDG            | Transport of Dangerous Goods                     | Transport de marchandises dangereuses                                   | TMD       |
| TIBC           | Total iron binding capacity                      | Capacité totale de fixation du fer                                      | TIBC/CTFF |
| TSH            | Thyroid-stimulating hormones                     | Hormones stimulant la thyroïde  | TSH       |
| WBC            | White blood cell                                 | Globule blanc   | GB        |
| WHMIS          | Workplace Hazardous Materials Information System | Système d'information sur les matières dangereuses utilisées au travail | SIMDUT    |

\*NPO: also known as nil per os (npo or NPO), a Latin phrase whose English translation is most literally, "nothing through the mouth" / NPO: du latin nil per os, locution latine signifiant rien par la bouche ou ne rien administrer par voie orale

\*\*STAT: derived from the Latin word *Statim*, meaning immediately / STAT: dérivé du mot *Statim* en latin, qui signifie immédiatement



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