

## Position Statement

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### Medical Laboratory Professionals Use of Artificial Intelligence

1. **Introduction.** Artificial Intelligence (AI) refers to the development of computer systems or machines that can perform tasks typically requiring human intelligence. These tasks include learning from data, reasoning, problem-solving, understanding natural language, and recognizing patterns. AI systems range from narrow AI, which is designed to handle specific tasks like voice assistants or image recognition, to more general AI, which aims to mimic the broad cognitive abilities of humans. The field encompasses various techniques, such as machine learning, neural networks, and natural language processing, enabling machines to improve their performance over time without explicit programming.

AI can enhance interconnectedness among patients, healthcare workers, and staff by reducing administrative burdens, allowing more focus on direct patient care. When used responsibly, it can improve job performance, helping healthcare professionals better meet patients' needs.

As technology evolves, so does the integration of Artificial Intelligence (AI) in healthcare settings. AI has the potential to revolutionize patient care, streamline processes, and improve outcomes. However, its use requires careful consideration to ensure ethical, safe, legal, and practical implications are addressed. This policy outlines the guidelines and procedures for the responsible use of AI within a healthcare workplace.

2. **Purpose.** The purpose of this policy is to:
  - Establish guidelines for the ethical and responsible use of AI technologies.
  - Safeguard patient confidentiality and privacy.
  - Promote transparency and accountability in AI decision-making processes.
  - Foster a culture of continuous learning and improvement in AI applications.
  - Promote compliance with applicable laws and regulations.
  - Build AI literacy within the medical laboratory community
3. **Scope.** This policy applies to all CSMLS members who utilize AI technologies within the healthcare workplace.
4. **Ethical Principles.** AI applications within the healthcare workplace should adhere to the following ethical principles:

- **Beneficence:** AI technologies should be used to maximize benefits and minimize harm to patients.
  - **Transparency:** The rationale behind AI decisions should be clear and understandable to healthcare professionals and patients.
  - **Autonomy:** Patients have the right to make informed decisions about their healthcare, including the use of AI tools.
  - **Accountability:** Individuals responsible for developing, implementing, or using AI technologies are accountable for their actions and decisions.
  - **Justice:** AI algorithms should not perpetuate biases or discrimination in patient care.
  - **Attribution:** The use of AI in decision-making should be clearly credited and identifiable to ensure accountability and traceability in outcomes.
5. **Data Privacy and Security.** All data collected and utilized by AI systems must comply with applicable privacy laws and regulations, such as the Digital Charter Implementation Act, 2022. Note that there is no regulatory framework in Canada specific to AI. Thus, AI systems may not address systemic risks during their design and development. However, regulations in specific areas, such as health and finance, can still apply to uses of AI. For example, provincial acts such as Personal Health Information Act or the Personal Health Information Protection Act protect the confidentiality of health information and the privacy of individuals with respect to that information. Measures should be in place to ensure the security and integrity of patient data, including encryption and access controls and access to patient data should be restricted to authorized personnel only.
6. **Risk Management.** Regular risk assessments should be conducted to identify potential risks associated with AI applications, including data breaches, algorithmic biases, and unintended consequences and mitigation strategies should be developed and implemented to address identified risks.

CSMLS emphasizes that the use of AI in the workplace must always be performed with sufficient human oversight to help reduce risk.

To ensure sustainability and mitigate risks, medical labs should avoid relying solely on an AI system. Strategies include combining human oversight with AI, maintaining process redundancy through non-AI alternatives and documented protocols. Regular downtime drills are also encouraged. Backup systems, such as distributed AI infrastructure, offline AI, traditional IT solutions or using multiple AI providers can provide additional resilience.

To address potential inaccuracies or bias in AI-generated content, a vetting mechanism should be established where human experts regularly review and fact-check outputs. Integrating

human oversight ensures that content remains accurate, unbiased, and aligned with professional standards, reducing risks associated with AI errors.

7. **Training and Education.** Healthcare professionals involved in the development, implementation, or use of AI technologies should receive adequate training on ethical considerations, data privacy, and security. As AI technology advances, regular education and training sessions should be provided to keep employees updated on those advancements and best practices.
8. **Collaboration and Interdisciplinary Approach:** Collaboration between healthcare professionals, and other relevant stakeholders (e.g. data scientists, ethics specialists) is essential for the responsible development and deployment of AI technologies. An interdisciplinary approach should be adopted to ensure that AI applications align with clinical best practices and ethical standards.
9. **Continuous Monitoring and Evaluation.** Ongoing monitoring and evaluation of AI applications should be conducted to assess their impact on patient outcomes, workflow efficiency, and compliance with ethical principles. Feedback from healthcare professionals and patients should be solicited to identify areas for improvement. Employees are encouraged to report any violations or concerns regarding the use of AI technologies through established channels.
10. **Responsibility.** The responsible use of AI technologies has the potential to enhance patient care and drive innovation in healthcare. By adhering to the principles outlined in this policy, MLPs can harness the benefits of AI while upholding the highest standards of ethics, privacy, and security in the workplace.

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