



ACO ADVISORIES

EMERGING TECHNOLOGY

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Emerging Technology Advisory

As the field of optometry continues to evolve, emerging technologies are reshaping how eye care is delivered; thus enhancing diagnostic capabilities, treatment options, and overall patient experiences. These innovations provide significant benefits, such as earlier disease detection and more personalized care. However, as with all new technologies, Alberta's optometrists must approach these advancements with careful consideration of patient safety, effectiveness, and the evolving regulatory landscape.

Exploring practices beyond evidence-based conventional medicine can include approaches not yet part of widely accepted clinical guidelines, such as complementary and alternative medicine, as well as emerging therapies that offer new possibilities for care. When considering such practices, optometrists should ensure they align with the ACO's Code of Ethics, prioritizing patient safety, informed consent, and the responsible integration of innovative care.

Purpose

The purpose of this advisory is to provide guidance to regulated members of the Alberta College of Optometrists (ACO) regarding the safe, ethical, and legally compliant integration of emerging technologies into optometric practice.

Emerging technologies include, but are not limited to:

- Artificial intelligence (AI) diagnostic or decision-support systems
- Automated image analysis and screening platforms
- Remote monitoring and tele-optometry tools
- Digital health applications and wearable devices
- Cloud-based electronic health record (EHR) systems
- Advanced imaging technologies and software-based interpretation tools

This advisory clarifies professional expectations and does not replace existing Standards of Practice, the Code of Ethics, or legislative requirements.

Overarching Professional Responsibility

The regulated member remains fully accountable for all clinical decisions, patient interactions, and outcomes, regardless of whether emerging technologies are used to inform care.

Technology:

- Does not replace clinical judgment
- Does not transfer professional liability
- Must not be relied upon beyond the optometrist's competence to evaluate its outputs

An optometrist must be able to critically assess, interpret, and, where appropriate, override any recommendation generated by a technological system.

Competence and Due Diligence

Before implementing any emerging technology, the optometrist must:

- 1. Understand the technology's intended use, limitations, and evidence base**
 - Review available validation studies
 - Confirm regulatory approvals, where applicable (e.g., Health Canada authorization for medical devices)
- 2. Ensure personal competence**
 - Obtain appropriate education or training
 - Understand the scope and reliability of outputs
- 3. Evaluate clinical integration**
 - Determine how the technology fits within existing workflows
 - Ensure that patient safety and quality of care are not compromised

Adoption of new technology must align with the standard of care expected of a reasonably prudent optometrist practising in Alberta.

Informed Consent

Where emerging technologies meaningfully influence assessment, diagnosis, or management, optometrists must ensure patients are informed of:

- The role of the technology in their care
- Any material risks or limitations; including off-label usage
- Whether decision-making includes automated or AI-assisted analysis

Informed consent must be documented in accordance with legislative and professional requirements. Clear communication is essential to ensure patients understand how these innovations may impact their care and outcomes.

Privacy, Security, and Data Governance

Optometrists must comply with Alberta privacy legislation, including the Health Information Act, when collecting, storing, transmitting, or analyzing patient information using emerging technologies.

Particular attention must be paid to:

- Cloud-based storage and cross-border data transfer
- Third-party vendors accessing patient data
- Data encryption and cybersecurity safeguards
- Contractual clarity regarding data ownership and secondary use

The regulated member remains the custodian of health information and is responsible for ensuring vendors meet Alberta's privacy requirements. Alberta optometrists must comply with provincial privacy laws, such as the **Personal Information Protection Act (PIPA)**, and the **Health Information Act (HIA)** to protect patient data when using these technologies. Review of office Privacy Impact Assessments (PIAs) should be done when implementing new technology.

Advertising and Representations

Optometrists must not make misleading or unsubstantiated claims about:

- The diagnostic accuracy of AI systems
- Superiority of services solely due to technology adoption
- Outcomes not supported by credible evidence

All representations must comply with applicable advertising standards and ethical obligations.

Tele-Optometry and Remote Technologies

Where technologies facilitate remote care:

- The optometrist must ensure the standard of care is equivalent to in-person care, where clinically appropriate
- Limitations of remote assessment must be considered
- Proper documentation must be maintained
- Emergency referral processes must be clearly established

The practitioner must ensure that remote services are appropriate for the patient's clinical circumstances.

Clinical Documentation

The health record must clearly reflect:

- Use of any AI or automated tool
- The optometrist's independent interpretation
- Clinical reasoning supporting final decisions

Documentation should demonstrate that the optometrist exercised professional judgment rather than relying solely on automated outputs.

Continuous Monitoring and Quality Assurance

Optometrists who implement emerging technologies must:

- Monitor performance and reliability over time
- Establish quality assurance processes
- Address errors, discrepancies, or adverse events promptly

Where systemic concerns arise, registrants should consider whether reporting obligations apply under applicable legislation or professional standards.

Ethical Considerations

Optometrists must ensure that emerging technologies:

- Do not introduce bias or inequity in care
- Do not compromise patient autonomy
- Are used in a manner consistent with professional integrity

Commercial relationships with technology vendors must not influence clinical judgment. Alberta optometrists should carefully evaluate the risk-to-benefit ratio, considering both the clinical value and financial impact on patients and clinics. Adoption should align with provincial health policies, insurance coverage, and the overall accessibility and affordability of care.

Summary

Emerging technologies offer significant potential to enhance patient care. However, their integration into optometric practice must be:

- Evidence-informed
- Legally compliant
- Ethically sound
- Patient-centred

The regulated member remains fully responsible for the delivery of safe, competent, and ethical care in accordance with the Health Professions Act, the Optometrists Profession Regulation, and the Standards of Practice of the College of Optometrists of Alberta.