CANADIAN ASSOCIATION OF OPTOMETRISTS
ASSOCIATION CANADIENNE DES OPTOMÉTRISTES

Optometric Leadership Forum

2024 Summary Report

Eyes Forward: Advancing Optometry with AI and Teleoptometry

Optometric Leadership Forum

2024 Summary Report

Every year, the Canadian Association of Optometrists convenes leaders in optometry from across Canada to discuss strategic issues relating to the profession. The Optometric Leadership Forum (OLF) serves as an important platform, bringing together representatives from provincial associations, regulators, academia, industry, and international stakeholders to collectively tackle challenges and strategize for the future of optometry in Canada.

On January 25 and 26, 2024, 110 participants from Canada, the United States, Australia, and Switzerland gathered in Ottawa to engage in discussions and knowledge-sharing focused on artificial intelligence and teleoptometry. This marked the second consecutive year that the CAO chose this theme for the forum - underscoring its significance in the optometry landscape.

As participants discussed how optometry in Canada could be changed with the influence of teleoptometry and artificial intelligence, several considerations emerged as ones to be considered in the coming years.

Highlights from Small Group Discussions

1. **Teleoptometry:** What needs to be done to build the proper framework – What are regulatory, cultural, ethical, technological, and financial considerations?
   - CAO advocates for the formulation of evidence-based guidelines and regulatory standards to facilitate the optimal implementation of optometric care across Canada (refer to CAO's Policy statement).
   - Teleoptometry holds the potential to improve access to eye care in remote areas of Canada, especially in indigenous communities where there might be a shortage of optometrists.
   - Despite its benefits, teleoptometry could inadvertently enable optometry practices to compete remotely in areas already well-served by optometrists.

Teleoptometry (*continued*)

- It is essential to underscore that teleoptometry should not replace in-person exams or the role of the optometrist. It is crucial to evaluate the motivations behind teleoptometry to prevent opportunistic practices.
- The optometrist must remain in control, with technology as an assistive tool rather than independently operating.
- Establishing an appropriate regulatory framework, patient flow guidelines, and practice standards is paramount. Ideally, these standards should be broad and consistent across jurisdictions without being overly prescriptive.
- To foster the growth of teleoptometry, reimbursement mechanisms need to be established, incorporating a combination of out-of-pocket payments, insurance coverage, and public payors.

2 **Scope of practice:** How will AI affect scope? Can it assist in elevating the optometrist's scope of practice?

- AI is poised to automate specific tasks currently performed by optometrists, allowing them to operate at their full capacity and potentially broaden their existing scope.
- The potential of AI extends to enhancing the optometrist's ability to screen for and possibly diagnose conditions. For instance, cardiovascular and neurological monitoring might become integral to the optometric scope.
- Questions arise about compensation for optometrists taking on these additional responsibilities and who would bear the financial responsibility.
- Encouraging optometrists to work at their full scope, with associated responsibilities, could lead to increased efficiencies for the health system and government. Finding sustainable compensation models becomes crucial in this context.

3 **Specialization:** Why is specialization even more important in the age of AI, and how can AI support efforts in this area?

- AI, serving as a facilitator in optometry, encourages practitioners to explore avenues for improving their services and setting themselves apart. Specialization emerges as a clear strategy to establish a unique and distinctive offering.
- Specific applications of AI have the potential to elevate various specialties within the field.

4 **AI-Enhanced Optometry** and the future role of optometrists in detecting and monitoring systemic diseases: revolutionizing Healthcare with retinal biomarkers.

- Assisted by AI tools, optometrists can extend their diagnostic capabilities to detect systemic diseases beyond those impacting the visual system. This advancement positions optometrists to play a vital role in health systems, contributing to the identification of neurologic and cardiovascular conditions, thereby improving screening access and facilitating qualified referrals to other healthcare professionals.
- However, this breakthrough presents new challenges. Optometrists must grapple with questions about their role when patients lack family physicians. Should optometrists bear a responsibility for patient care beyond their traditional scope? Could they evolve into wellness advisors? How should they effectively communicate systemic health data and associated risks to patients?
- AI has the potential to narrow the gap with specialists, potentially reducing the demand for specialized healthcare services.
- On the flip side, industry may deploy portable fundus cameras supported by AI in non-optometry settings like medical clinics and pharmacies. This deployment could generate valuable leads for optometrists when vision conditions are detected.
- Healthcare organizations, including managed care organizations, recognize the potential of retinal scans in early detection and screening of health conditions. Investments in companies like Optain aim to improve health workflows, outcomes, and overall cost reduction.
- AI holds promise in enhancing the management of optometry clinics, aiding in frame selection, workflow management, human resources, inventory management, claims processing, and converting shorthand into structured clinical notes.
- Optometrists can lead by owning the referral pathway, identifying biomarkers, and managing patients until referral is indicated.

AI-Enhanced Optometry (*continued*)

- AI-enabled clinical decision support tools can boost confidence, helping optometrists avoid unnecessary referrals or over-referrals and directing appropriate referrals to specialties like neurology and dermatology.
- Integration of optometrists into healthcare teams is crucial for maximizing their role in comprehensive patient care.
- There is a pressing need for awareness-building with other healthcare professions, highlighting the enhanced role optometrists can play in collaborative healthcare efforts.
- Adoption of eye scans outside optometry offices to detect ocular and systemic conditions in locations such as medical offices and pharmacies:
  - Risk of disintermediation of optometrists.
  - Creation of a false sense of security, potentially leading patients to bypass comprehensive eye exams altogether.
- Streamlined business and office management, including scheduling, HR, dispensing, record-keeping, frame inventory management, and EMR.
- Efficient monitoring and referrals, leading to workflow optimization, reduced testing frequency, and improved counselling and education.
- Caution against reducing staffing levels, as patients often seek and appreciate human interactions.
- Proliferation of online refraction systems.
- Risk of commoditizing certain aspects of optometrists' work.
- Cost burden on small clinics to keep pace with evolving technology.

5 **AI and optometric education:** How can AI enhance optometric education in schools?

- Keeping pace with the rapid evolution of AI innovation poses a significant challenge.
- Optometry schools must proactively anticipate the influence of AI on professional practice and integrate the latest AI advancements into their curriculum.
- AI algorithms have the potential to analyze examination results, guiding educators in making informed program changes.

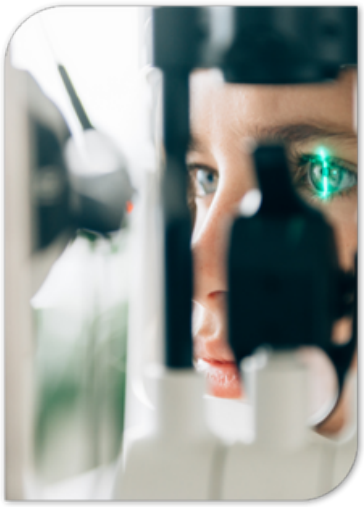
AI and optometric education (*continued*)

- Utilizing AI for simulations can enhance the educational experience for optometry students.
- Given students' eagerness to learn about AI, they are likely to be early adopters upon graduation.
- Schools must develop strategies to differentiate between hype and sustainable AI applications.
- Establishing partnerships with industry can enhance schools' ability to stay attuned to market shifts.
- New research opportunities will emerge, necessitating the identification of grants for optometry schools.
- Optometry schools can contribute by collecting and managing large datasets, allowing the development of AI applications tailored to Canadian demographics.
- Integrating AI into school-managed clinics provides students with hands-on experience not only with clinical tools but also in office and business management solutions.
- AI productivity solutions, such as an enterprise version of ChatGPT and Microsoft’s Co-Pilot, can streamline administrative tasks, enhancing productivity and reducing costs for optometry schools.
- Guidelines on appropriate AI continuing education (CE) for optometrists will be essential.
- Tech companies may become sponsors of optometry schools, supporting both educational programs and CE modules.
- The potential use of AI in student selection processes raises important questions for consideration.
- Student assessments should be reevaluated in the era of AI, addressing concerns related to possible cheating using tools like ChatGPT.
- Soon, AI may have the capability to generate continuing education material for optometrists.
- Accelerated translation of research findings into practical applications.
- Technology-enabled fraud, exemplified by instances like ChatGPT-generated fake resumes.

Highlights from Plenary Presentations

Jeff Dunkel, *CEO, Optain* & **Dr. Zachary Tan**, *MD MMED MMSC + General partner, AEGIS VENTURES & ASCERTAIN*

Jeff Dunkel presented a model utilized by the US government to pinpoint innovations with substantial public health impact, emphasizing criteria such as a positive influence on health outcomes, cost reduction in healthcare, and a low innovation gap for swift patient solutions. Given these parameters, innovations addressing diabetes, osteoarthritis, drug use disorders, ischemic heart disease, and Alzheimer's disease should be prioritized.



The emerging field of Oculomics, which involves identifying biomarkers in the eye for holistic patient health assessment, has garnered attention. This science encompasses screening, diagnosis, and monitoring at the point of care, leveraging the combination of AI and fundus imaging to create a groundbreaking diagnostic paradigm. Oculomics is gaining global recognition for its cost-effective approach to identifying systemic conditions beyond eye diseases.

Dr. Tan highlighted recent advancements in applying AI to healthcare, underscoring a significant translation gap in AI adoption across the healthcare sector. However, vision care has been at the forefront, with the first FDA authorization for AI-enabled disease detection in all fields of practice occurring in vision care in 2018. The introduction of the first US CPT reimbursement code for AI-enabled diagnostics in vision care in 2021 (CPT 92229) further signals a pioneering role for vision care in translating AI into practice. The advent of automated, portable retinal imaging devices has expanded accessibility in settings where traditional retinal imaging was not available, such as family physicians' offices and community health centers. This development holds the potential to improve screening access and facilitate qualified referrals to eye care professionals in optometry and ophthalmology.

Oculomics applications span various factors, including demographic factors like biological age, sex, and smoking status, body composition factors like BMI, and assessments related to neurological and cardiovascular conditions such as Alzheimer's and Parkinson's diseases, cardiovascular event risk, coronary artery calcification, and carotid artery atherosclerosis.

In conclusion, Jeff Dunkel and Dr. Tan cautioned clinicians about potential pitfalls in applying oculomics, emphasizing the importance of ensuring innovations align with functional needs, economic viability, patient interests, and care pathways. Additionally, they stressed the necessity of verifying the robustness of data models supporting these innovations.

Dr. Dena Weitzman, *Director of Scientific Affairs at Digital Diagnostics*

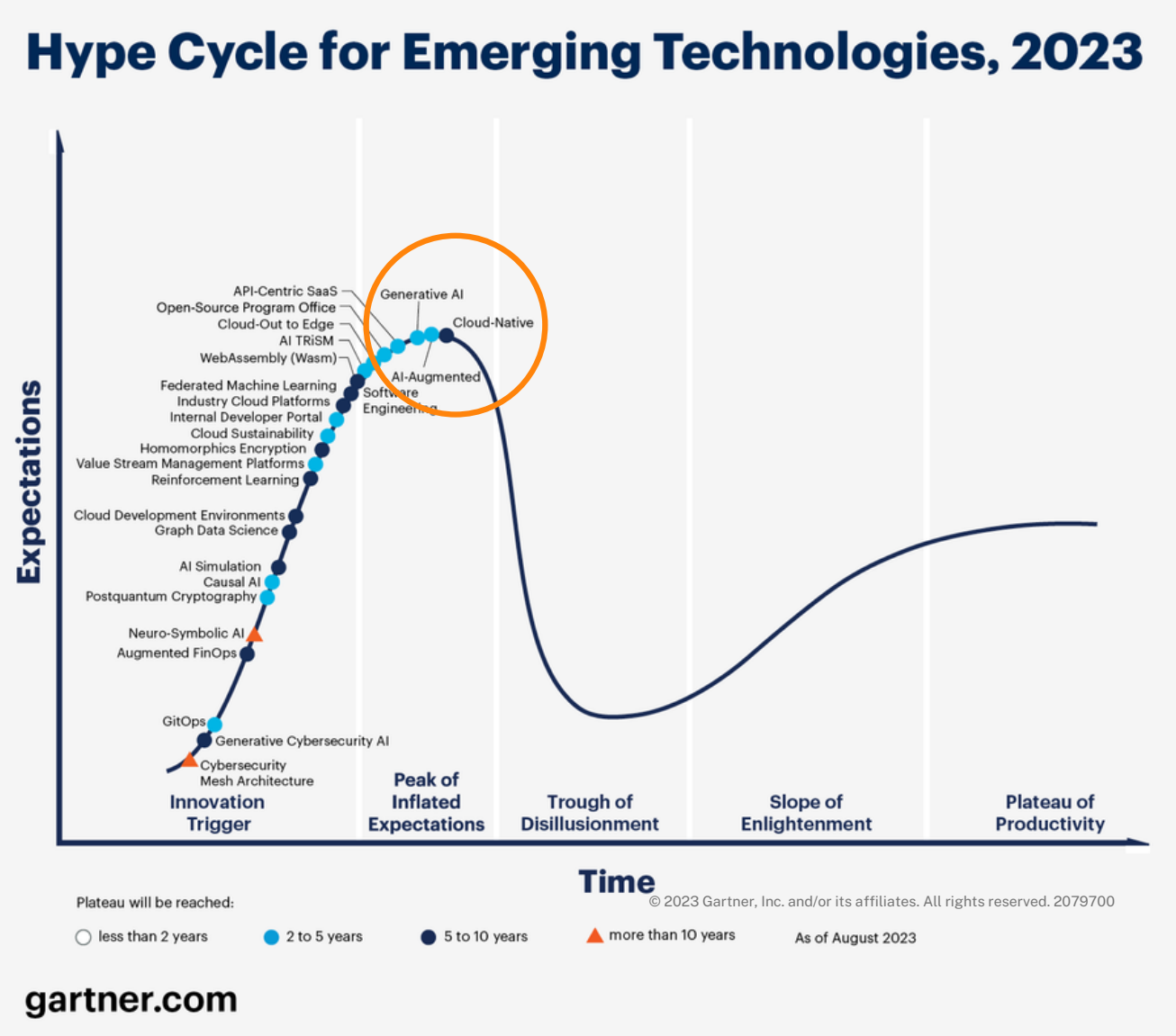
Building upon earlier discussions, Dr. Weitzman provided a more comprehensive exploration of basic and advanced AI concepts. She emphasized the importance of responsible principles guiding the development of any new AI-enabled products. Dr. Weitzman urged fellow optometrists to actively embrace AI and participate in the development of the technology. She envisions that the widespread adoption of AI has the potential to improve and advance eye care significantly.

Peter Jones, *Industry Lead - Canadian Healthcare, Microsoft Canada Co*

Peter discussed Microsoft's stance on AI in healthcare, specifically highlighting generative AI. Satya Nadella, Microsoft's CEO, underscores the significance of AI as technology's foremost priority, with healthcare being its most pressing application. In the context of the fifth industrial revolution, there is immense potential to revolutionize healthcare through personalized medicine, enhanced diagnostics, and elevated patient care. AI-powered systems have the capability to analyze medical data, identify patterns, and make precise predictions, ultimately resulting in more targeted and effective treatments. The medical fields anticipated to undergo the earliest transformations include Radiology, Ophthalmology, Dermatology, and Pathology. Microsoft is actively developing a suite of AI-enabled products aimed at augmenting the productivity of health systems through advanced analytics. These innovations adhere to a set of responsible AI principles, encompassing Privacy, Security, Inclusiveness, Accountability, Transparency, Fairness, Reliability, and Safety.

Additional note from the authors' report:

ChatGPT has the fastest global adoption of any digital service in recorded history. By far. Gartner Poll finds 55% of Organizations are in Piloting or Production Mode with Generative AI Oct 3rd, 2023. "Adapted from What's New in the 2023 Gartner Hype Cycle TM for Emerging Technologies"



Adapted from: https://www.gartner.com/en/articles/what-s-new-in-the-2023-gartner-hype-cycle-for-emerging-technologies [1]

[1] **N.B:** Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

Call to action

Optometrists are currently witnessing a technology-driven discourse that often overshadows real-life necessities. It is imperative for us to collectively challenge ourselves to identify tangible problems that can be effectively addressed by AI. As technology evolves rapidly, safeguarding our patients and the integrity of our profession is paramount while also actively engaging in transformative innovations. Should we collectively agree on the necessity of embracing AI, the question becomes how to establish a sustainable model that allows for agility. Integrating AI advancements into our practices should be approached thoughtfully, fostering active participation within the broader healthcare system. Advocating for an expanded role for optometry is crucial, and it is time for the profession to assert ownership in this domain.

All optometrists are encouraged to seize opportunities to incorporate AI into their practices. Provincial regulators play a pivotal role in facilitating discussions with other health regulators to establish a balanced and appropriately regulated environment for AI. Provincial associations can contribute by disseminating the insights gained from these discussions within their respective regions.

Leaders within the optometry profession who have actively participated in forums like OLF bear a collective responsibility to share the knowledge and insights acquired during these engagements. By doing so, we ensure that the optometric community is well-informed and prepared to navigate the evolving landscape of AI integration in eye care.