alPHa RESOLUTION A24-02

TITLE: **Artificial Intelligence for Enhanced Public Health Outcomes**

SPONSOR: **Simcoe Muskoka District Health Unit, Wellington-Dufferin-Guelph Health Unit**

WHEREAS artificial intelligence (AI) has the potential to revolutionize public health by improving disease surveillance, health promotion, health protection, and service delivery; and

WHEREAS AI-driven technologies can significantly aid in the analysis of large datasets, leading to more accurate and/or rapid identification of public health trends and outbreaks; and

WHEREAS the integration of AI in public health can enhance health promotion and health protection interventions; and

WHEREAS ethical considerations, including data privacy, bias, and transparency, are paramount in the deployment of AI technologies in public health; and

WHEREAS there is a growing need for public health professionals to be equipped with knowledge and skills in AI to effectively utilize these technologies; and

WHEREAS collaboration between local public health agencies, technology experts, and policymakers is essential for the responsible and effective implementation of AI in public health; and

WHEREAS there is an opportunity to leverage AI for addressing health disparities and promoting health equity across different populations; and

WHEREAS a proactive approach would position public health agencies as beneficiaries of the technological evolution and as contributors to the ethical and impactful use of AI in improving public health and wellbeing;

NOW THEREFORE BE IT RESOLVED that that the Association of Local Public Health Agencies write to the Ontario Minister of Health to provide background information on the transformational possibilities of AI tools in the future delivery of Public Health programs and services;

AND FURTHER that alPHa call for increased academic investment in data stewardship, AI research, training, and development focused on public health applications and post-secondary educational programs through the Ontario Minister of Colleges and Universities;

AND FURTHER that alPHa acknowledge the transformative potential of AI and other emerging technologies as pivotal tools for the future across all sectors of industry and society, and support public health agencies in carefully leveraging these tools to enhance health outcomes, improve service delivery, and increase operational efficiency;

AND FURTHER that a copy of this resolution be sent to the President and Chief Executive Officer of Public Health Ontario and to the Chief Medical Officer of Health of Ontario.

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BACKGROUND:

Introduction

The integration of AI and emerging technologies marks a transformative shift in the landscape of public health. These innovations offer new methods for tackling complex health challenges, enhancing patient care, and improving the delivery of health services. For Ontario's Local Public Health Agencies (LPHAs), adopting AI and related technologies is crucial to meet the evolving needs of public health effectively.

Defining AI and Emerging Technologies

AI refers to the use of technology to perform tasks that otherwise require human-level intelligence to complete[1, 2]. AI has shown effectiveness at an increasingly broad range of tasks, including pattern recognition, decision-making[3], and language understanding[1]. Emerging technologies encompass a broad range of innovative tools and systems, including blockchain, the Internet of Things (IoT), and advanced computing, which are on the cusp of becoming mainstream. These technologies offer new capabilities that can significantly impact various sectors, including public health, by enhancing data analysis, connectivity, and operational efficiency.

AI and Emerging Technologies: Revolutionizing Public Health

AI and emerging technologies are transforming public health through applications in predictive analytics, health equity enhancement[4], and the development of digital health services[5]. These tools offer unprecedented opportunities for disease surveillance[6], optimizing health interventions[7], and providing more personalized care[3,8,9,10].

Predictive Analytics

AI-driven models can sift through vast datasets to predict health trends and potential outbreaks, enabling LPHAs to allocate resources more effectively and prepare for public health emergencies[11]. This predictive capability is critical for planning and emergency response, enhancing the public health system's ability to mitigate threats.

Health Equity

AI can play a pivotal role in identifying and addressing health disparities by analyzing patterns in health outcomes and access to care. By leveraging AI, LPHAs can design targeted interventions to meet the unique needs of underserved populations, thereby promoting equity across different communities[12].

Digital Health Innovations

Advancements in technology have accelerated the adoption of telehealth and digital health platforms, offering new modes of healthcare delivery. AI enhances these services by improving accuracy, enabling real-time patient monitoring, and tailoring treatment plans[3], thus making healthcare more accessible and efficient[8].

Building Capacity for Technological Adoption

To fully benefit from AI and emerging technologies, LPHAs need to invest in digital infrastructure and upskill their workforce. This involves adopting digital tools and training healthcare professionals to use these technologies effectively, ensuring public health units are well-equipped to face future challenges[6, 13, 14, 15].

Ethical Considerations in AI Deployment

Deploying AI in healthcare and public health must adhere to stringent ethical standards, focusing on transparency, fairness, and accountability[10, 13, 16]. It's crucial to protect privacy and ensure that health

outcomes are equitable[7]. Developing comprehensive ethical guidelines and governance frameworks is vital for maintaining public trust in public health practices[8, 10, 17, 18].

Overcoming Challenges: Towards a Strategic Approach

Adopting AI and emerging technologies in public health comes with its set of challenges, including data privacy concerns, potential algorithmic bias, future regulatory frameworks[19] and the digital divide[7, 16, 20]. Addressing these issues requires a strategic approach that includes policy development, stakeholder engagement, data stewardship, and continuous evaluation to ensure responsible and effective use of these technologies[7, 16, 17, 21].

Conclusion

Strategically utilizing AI and emerging technologies presents a significant opportunity for Ontario's LPHAs to enhance public health services and outcomes. Embracing these innovations allows public health units to improve efficiency, responsiveness, and their ability to serve the community. Moving forward, a balanced approach that tackles technological, ethical, and operational challenges will be essential for leveraging the full potential of these technologies in enhancing public health.

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