

Digital Policy Hub – Working Paper

Generative AI Governance in Canadian Public Health: Policy Scan

Melissa MacKay

Fall 2024 cohort

About the Hub

The Digital Policy Hub at CIGI is a collaborative space for emerging scholars and innovative thinkers from the social, natural and applied sciences. It provides opportunities for undergraduate and graduate students and post-doctoral and visiting fellows to share and develop research on the rapid evolution and governance of transformative technologies. The Hub is founded on transdisciplinary approaches that seek to increase understanding of the socio-economic and technological impacts of digitalization and improve the quality and relevance of related research. Core research areas include data, economy and society; artificial intelligence; outer space; digitalization, security and democracy; and the environment and natural resources.

The Digital Policy Hub working papers are the product of research related to the Hub's identified themes prepared by participants during their fellowship.

About CIGI

The Centre for International Governance Innovation (CIGI) is an independent, non-partisan think tank whose peer-reviewed research and trusted analysis influence policy makers to innovate. Our global network of multidisciplinary researchers and strategic partnerships provide policy solutions for the digital era with one goal: to improve people's lives everywhere. Headquartered in Waterloo, Canada, CIGI has received support from the Government of Canada, the Government of Ontario and founder Jim Balsillie.

Partners

Thank you to Mitacs for its partnership and support of Digital Policy Hub fellows through the Accelerate program. We would also like to acknowledge the many universities, governments and private sector partners for their involvement allowing CIGI to offer this holistic research environment.



Copyright © 2025 by Melissa MacKay

The opinions expressed in this publication are those of the author and do not necessarily reflect the views of the Centre for International Governance Innovation or its Board of Directors.

Centre for International Governance Innovation and CIGI are registered trademarks.

67 Erb Street West
Waterloo, ON, Canada N2L 6C2
www.cigionline.org

Key Points

- Organizational generative artificial intelligence (AI) policies relevant to Canadian public health are limited in number and scope. This policy scan includes 14 policies across various levels of the public health system, and includes guidance documents, codes of conduct and legislation. Policies focus on safety-based governance and cautious adoption and provide varied guidance on transparency, privacy, oversight and sustainability, but have very limited attention to environmental responsibility and public engagement.
- The reviewed policies frame equity as fairness, non-discrimination and bias prevention, emphasizing transparency, accountability and harm mitigation. However, they often overlook broader issues, such as community involvement, resulting in compliance-focused solutions that prioritize fairness in decision making without addressing systemic issues.
- Policies for and approaches to the trustworthy and responsible use of generative AI should be reimagined as proactive, participatory and adaptive measures focused on improving health equity and environmental responsibility.
- Policies should ensure that diverse communities actively contribute to the design, testing and governance of AI systems while accounting for the determinants of health and the environmental impacts, particularly within equity-deserving populations (communities that face systemic barriers and discrimination).
- Policies should promote collaboration across sectors, require AI training for public health professionals and require long-term monitoring. Ongoing community feedback and monitoring are essential to assess and adjust the equity impacts of AI systems, ensuring that the potential social and environmental consequences are continually addressed.

Introduction

Generative AI has received considerable attention recently because of its transformative potential, especially in health-related sectors. While it has demonstrated promise in areas such as epidemiology, surveillance, decision making and public health communication, concerns around its ethical and responsible use have emerged. Multimodal systems that produce text and other media, such as images, video and code, have spotlighted AI systems' capabilities. Generative AI has been used in health care for disease detection, diagnosis and screening, and informing clinical services (Yim et al. 2024). Within public health, generative AI has demonstrated potential in tailoring communication and initiatives to the needs of diverse communities (Fisher and Rosella 2022; Davis et al. 2024), and synthesizing accurate information and increasing productivity (Davis et al. 2024). While generative AI has been influential in the health sector, numerous negative impacts and risks have been highlighted, including the spread of inaccurate information and the exacerbation of inequities and bias (Lorenz, Perset and Berryhill 2023). The rapid uptake of generative AI systems has sparked widespread discussions and research on the ethical and governance challenges of AI. Global debates continue over which risks should be prioritized

and how generative AI models should be regulated (Ulnicane 2024). The uptake and risks have prompted governments to take action, although the pace of policy development has been notably slow, especially in Canada (Field Law 2024).

The risks of AI use in public health have been well documented. Privacy concerns arise as AI models collect and analyze personal health data, which can be de-anonymized and is susceptible to security breaches (Miller, Sehat and Jennings 2024). Additionally, AI systems can amplify bias and discrimination, as they are influenced by the data they are trained on and wider societal biases. Another major challenge is accuracy, as AI-generated content can include outdated, misleading or hallucinated information. This directly contributes to the spread of mis- and disinformation, where AI systems can generate and perpetuate myths, conspiracy theories and false claims related to health (ibid.). The workforce implications of AI in health communication specifically should also be considered, including potential job losses, the need for reskilling and the risk of overdependence on generative AI (ibid.). Another significant risk is that the workforce may be using AI without adequate training and competencies (Panteli et al. 2025). Public health organizations may struggle with ongoing funding to maintain AI-related resources and practitioners. AI also poses environmental concerns, as its energy and water consumption is much higher than other technologies (Miller, Sehat and Jennings 2024), and the resource extraction required for AI technology development can have significant environmental impacts (Pasi 2025), particularly in areas such as mining in northern Canada that affect Indigenous populations (Perrault et al. 2025). AI technology development and use can cause significant environmental harm, contributing to social inequalities and negative health outcomes related to energy consumption, water and air pollution, and resource extraction. Finally, technical challenges must be acknowledged, as AI systems require continuous updates, expertise and resources to ensure their reliability and effectiveness (Miller, Sehat and Jennings 2024). Effective governance and legislation are essential to addressing these risks, ensuring that the use of AI in public health benefits everyone while mitigating its potential harms.

While Canada's AI regulation is under development, voluntary guidelines are being put into place, and various governments and organizations at different jurisdictional levels are developing policies (Field Law 2024). In June 2022, the Government of Canada tabled the Artificial Intelligence and Data Act (AIDA) to regulate AI in Canada under a harms-based framework (Government of Canada 2025). A harms-based framework focuses on assessing and mitigating AI risks rather than setting strict operational requirements. AIDA has been heavily debated, criticized and refined but has not progressed through to being enacted (Field Law 2024). AIDA has faced significant criticism for its exclusionary public consultation process, which limited input from marginalized communities and civil society organizations (Attard-Frost 2025). Additionally, its scope remains vague with no clear definition of high-impact systems and of what level of risk to health, safety and bias is sufficient to be regulated under the act (Sookman 2023). AIDA limits its scope to high-impact systems, but harms and risks are present across all types of AI systems (The Dais and the Centre for Media, Technology, and Democracy 2023). The definition of harm within the act also does not adequately address community- and population-level harms, which are significant to public health (Thomassen 2023; The Dais and the Centre for Media, Technology and Democracy 2023). Community- and population-level harms could include mis- and disinformation, cultural and language rights implications, and loss of jobs, which all have implications on the determinants of health (Thomassen 2023).

Additionally, AIDA was criticized for lack of independent regulatory oversight, raising concerns about its effectiveness in protecting against harmful AI impacts (Attard-Frost 2025).

To fill some of these gaps, non-binding guidelines have been passed. The Government of Canada released a “Guide on the use of generative artificial intelligence” for the use of AI in the public sector, outlining best practices for AI integration (Government of Canada 2024). A “Voluntary Code of Conduct on the Responsible Development and Management of Advanced Generative AI Systems” was developed by the AI industry in 2023 for the private sector (Innovation, Science and Economic Development Canada [ISED] 2023). The code provides six guiding principles for ethical AI use, covering accountability, safety, fairness and equity, transparency, human oversight and monitoring, and validity and robustness (*ibid.*). Much like AIDA, criticisms of the code include insufficient public consultation, lack of accountability given it is a voluntary framework and ambiguity in guidelines (da Mota 2024).

There are also provincial and international efforts to regulate and provide direction on the governance of AI systems, demonstrating the complexity of the regulatory and governance landscape (Field Law 2024). For example, the European Union’s AI Act has set clear risk-based regulatory categories, whereas Canada remains reliant on voluntary frameworks. Policies and guidelines for generative AI use in public health are necessary to evaluate potential bias and equity issues (Fisher and Rosella 2022; Canadian Institutes of Health Research 2021). While legislation provides a foundational framework, it is not sufficient on its own to ensure the responsible and trustworthy use of generative AI in public health. Organizations must develop internal policies that incorporate ethical principles and proactively address gaps in existing and proposed regulations. Organizational policies offer the flexibility needed to keep pace with the rapid advancement of AI technologies while being agile enough to address risks. The World Health Organization (WHO) has released guidance with more than 40 recommendations for consideration by governments and public health for the appropriate use of generative AI to promote and protect health (WHO 2025), which could be used as a framework for the development of organizational policies.

Governance of generative AI has increasingly become a site of power struggles, as debates continue over who should have decision-making authority over AI development and regulation (Ulnicane 2024), as well as accountability for harms. Proactive approaches to generative AI governance emphasize collaboration across groups, which include diverse communities’ perspectives in the design and implementation of models (Wilson 2022). Collaborative and proactive approaches are expected to counterbalance private sector interests and mitigate the risks associated with generative AI (Wilson 2022; Ulnicane 2024). Boosting the public’s participation in governance of technology improves the diversity of viewpoints and representation of public values and needs (Galvagna 2023). There are high barriers to public participation in governance, including limited opportunities, resources, expertise and time; industry dominance; and lack of awareness or interest (*ibid.*). Funding, resources and shared decision making through grants; a central hub for information, resources and participation; education and training; and participation in national delegations are some ways of improving public participation in the governance of technology (*ibid.*).

The Partnership on AI's Global Task Force for Inclusive AI has developed draft guidelines for participatory and inclusive AI, enabling organizations to engage diverse communities authentically and equitably during AI development and implementation (Park 2024). These guidelines aim to align AI initiatives with community needs and minimize potential harms, providing best practices and tools to support meaningful engagement (ibid.). A set of shared principles and guidelines for the ethical engagement of diverse communities and stakeholders across AI development and use is one way the Global Task Force for Inclusive AI aims to include diverse communities in the design and use of AI (ibid.). Guidelines that ensure algorithmic equity, explainability of models and outputs, and responsibility are also key to aligning AI systems with community values and needs (ibid.).

A responsible innovation approach to AI governance reinforces the inclusion of diverse communities in the participatory governance of generative AI to reshape power imbalances associated with generative AI and ensure productive collaboration (Ulnicane 2024). This approach not only fosters more equitable decision making but also helps reshape the dynamics between corporate, governmental and public interests, ensuring that AI governance remains transparent, inclusive and aligned with societal needs (ibid.).

While various governance efforts attempt to address the risks associated with generative AI, the extent to which equity is effectively conceptualized and addressed remains unclear. To date, no comprehensive policy scan has been conducted focusing on generative AI in the public health context. There is a clear need to examine which policies currently exist, how equity is framed within them and how these framings might be reoriented to better reflect principles of responsible and trustworthy AI use. This research included a comprehensive policy scan to gain a deeper understanding of the policy and governance landscape surrounding generative AI in Canadian public health. The research aims to assess Canadian public health organizational policies related to the use of generative AI by identifying trends, gaps and opportunities for responsible and trustworthy use. The objectives include:

- conducting a policy scan to identify existing policies and governance frameworks related to generative AI in public health relevant to Canada;
- analyzing policies using content analysis to assess their alignment with guiding principles, risk mitigation strategies, implementation considerations, accountability and community inclusion in their AI governance structures; and
- applying a framework to critically analyze how generative AI-related public health policies construct and define equity, examining assumptions, silences, power relations and implications.

Methods

A policy scan was conducted to identify and analyze generative AI policies from Canadian public health organizations. The policy scan included policies from various jurisdictions across Canada — at the local, provincial/territorial and federal levels — providing a snapshot of how generative AI is being governed in public health. Policies

that provide a global framework for generative AI governance in public health were also included, as such international standards can inform Canada's approach. A search strategy was developed in consultation with a specialist research librarian from the University of Guelph and refined by the research team.

The scan included policy documents on generative AI governance, which are critical for ensuring AI's responsible and trustworthy application in public health systems. Policies were included across all dates, available in English, and were any of the following policy types related to generative AI in public health:

- policies;
- procedures;
- standards;
- guidelines;
- guidance;
- codes of practice; and
- recommendations that guide decision making.

Policies focused on health-care settings without a community or population focus and/or clinical health-care settings only were excluded as they focus on individual patient care, such as diagnostics and personalized treatment. Public health aims to improve the health of communities and populations and does not typically engage in individual-level health care.

A general Google search and targeted Google site searches (site:url) across federal and provincial public health organizations and associations, government agencies and national public health collaborating centres were conducted. Additionally, a University of Waterloo government document site search was conducted (University of Waterloo 2025). Search terms related to generative AI, policies and public health were used iteratively. For example, the government documents search used the following keywords: "generative artificial intelligence" OR "artificial intelligence" OR "generative AI" AND "public health" OR "community health" OR "population health."

All pages were examined across the different searches for relevant policy documents for all search types, except for the Google search, where the first five pages were reviewed after the last relevant hit was found. The OR operators in the example above represent distinct searches using one phrase from the AI-related keywords and one from the public health concept. The term "Canada" was added to the general Google searches.

A content analysis of the included policies examined their scope, governance approach, ethical considerations and implementation strategies in public health. It examined whether policies explicitly mention generative AI, their governance stance (safety-based versus equity-based) and their tone (supportive, cautious or restrictive). The analysis also assessed references to Canadian laws (for example, AIDA, Personal Information Protection and Electronic Documents Act [PIPEDA]) and international frameworks (for example, WHO, Organisation for Economic Co-operation and Development

[OECD]). Key risks assessed include hallucinations, bias, data privacy issues and lack of transparency, while ethical considerations examined fairness, accountability and human oversight. Implementation strategies, including privacy protections, public engagement and sustainability, with attention to whether policies allow for future updates and interdisciplinary collaboration, were also examined. Appendix 1 includes the codebook with all variables used for the content analysis.

Finally, a “What’s the Problem Represented to Be?” (WPR) approach to further analyze the included policies was conducted (Bacchi 2017; Tawell and McCluskey 2022). The WPR approach was used to critically examine how policies framed and represented equity and how that leads to pursuing a policy strategy. The focus on the problematization of equity in the policies is necessary because it identifies and can help address systemic inequities, ensuring that policies benefit all members of the public. This approach was used to appraise the following across the included policies:

- how the policies define equity in relation to generative AI;
- what the problem is and how it is framed;
- the assumptions and prepositions underlying the policies; and
- the consequences of the framing, assumptions and problematization.

Results

Policy Scan

The policy scan included 14 local, provincial, federal and global policies (see Table 1). Most (n=12) of the policies were Canadian, and two were international in scope. Canada is a member state of the WHO, which authored the two international policies and thus made them applicable to public health in Canada. Policies were from the federal government (n=6), the provincial government (n=4), an international public health organization (n=2), a local public health unit (n=1) and a provincial public health association (n=1). The types of policies included were guidance documents (n=3), codes of conduct (n=3), policies (n=2), guidelines (n=2), legislation (n=1), policy framework (n=1), policy principles (n=1) and risk assessment tool related to a policy directive (n=1).

Examples of policies initially included in the policy scan that did not meet the inclusion criteria include the City of Edmonton’s Generative Artificial Intelligence standards. Although the policy type met the inclusion criteria, the City of Edmonton is separate from Alberta Health Services, which provides public health services. Another policy example that was initially included was the College of Physicians and Surgeons of BC Interim Guidance: Ethical Principles for Artificial Intelligence in Medicine, which only focused on the use of AI for clinical health care. Several interesting scholarly works were identified but excluded from the analysis, primarily because they did not qualify as policy documents.

| Author | Title | Date | System Level | Policy Type |
|---|---|---------|--|--|
| Science and Innovation | Guidance on the use of Artificial Intelligence in the development and review of research grant proposals | 2024 | Federal government | Guidelines |
| Office of the Privacy Commissioner of Canada | Principles for responsible, trustworthy and privacy-protective generative AI technologies | 2023 | Federal government | Principles |
| WHO | Ethics and Governance of AI for Health: WHO Guidance | 2021 | International public health organization | Guidance |
| Simcoe Muskoka District Health Unit (SMDHU) | SMDHU and Artificial Intelligence: Proper Use of Generative AI and Machine Learning Applications | 2024 | Local/regional public health | Policy and procedures |
| Province of Ontario | Ontario's Trustworthy Artificial Intelligence (AI) Framework | 2024 | Provincial government | Framework |
| Legislative Assembly of Ontario | Bill 194 | 2024 | Provincial government | Legislation |
| Provincial Health Services Authority (PHSA) | PHSA Researcher Guidance: Use of Generative Artificial Intelligence to Complete Research Work | 2024 | Public health association | Guidelines |
| ISED | Voluntary Code of Conduct on the Responsible Development and Management of Advanced Generative AI Systems | 2023 | Federal government | Code of conduct |
| Nova Scotia | Digital Code of Practice | No date | Provincial government | Code of conduct |
| ISED | Canadian Guardrails for Generative AI – Code of Practice | 2023 | Federal government | Code of conduct |
| WHO | Ethics and governance of AI for health: guidance on LLMs [large language models] | 2024 | International public health organization | Guidance |
| Government of Canada | Directive on Automated Decision-Making | 2023 | Federal government | Policy |
| Government of Canada | Algorithmic Impact Assessment Tool | 2024 | Federal government | Risk assessment tool to support Directive on Automated Decision-Making |
| Office of the Information and Privacy Commissioner of Alberta | AI: Guidance for Small Custodians on the use of Artificial Intelligence | 2023 | Provincial government | Guidance |

Source: Author.

Content Analysis

The vast majority of policies (n=12) approached the governance of generative AI with a safety-based approach, where the end goal is to manage the risks associated with AI. A safety-based approach often focuses on identifying, measuring and mitigating harms to make technologies “safe enough” for deployment. Only two policies approached governance from an ethics-based approach, where policies focus on doing no harm and protecting rights. This may include not using technology at all, regardless of risk mitigation. Most (n=10) of the policies were cautious, where the potential of AI is recognized but the emphasis is placed on careful evaluation, risk assessment and gradual adoption. Three policies were restrictive, with limits or heavy use restrictions for generative AI. Only one took a supportive tone, where the adoption of AI was encouraged, and guidelines for use were provided.

Across all policies, guidance to mitigate key risks and address ethical considerations varied (see Table 2). Most (n=12) policies provided guidance to mitigate the ability of models trained on sensitive data to extract personal information. Guidance on transparency (n=12) regarding uses (including communicating the use of AI to end users), accuracy, data sources and/or limitations of the technology was also included in most policies.

Table 2: Key Risks and Ethical Consideration Guidance Provided in Policies

| Variable | n (%) |
|--|-----------|
| Key Risks | |
| Sensitive information | 12 (85.7) |
| Hallucination/inaccuracies | 8 (57.1) |
| Data training and validation | 8 (57.1) |
| Opacity/control | 7 (50) |
| Design and implementation | 7 (50) |
| Jailbreaking | 3 (21.4) |
| Other (skill degradation and overestimation of benefits) | 2 (14.3) |
| Ethical Considerations | |
| Transparency | 12 (85.7) |
| Responsibility | 9 (64.3) |
| Fairness and bias | 9 (64.3) |
| Explainability | 8 (57.1) |
| Human safety | 6 (42.9) |
| Autonomy | 6 (42.9) |

Source: Author.

Finally, in terms of implementation considerations, policies provided varied guidance on privacy protection (n= 12) through anonymization and encryption of data inputted/used in generative AI models, and/or regulatory compliance; human oversight (n= 6) at various points across the use of generative AI models; training and education (n=4) for public health practitioners; and public engagement (n=3) in model use. Policies infrequently included guidance on environmental responsibility (n=2) related to AI use or ongoing public engagement (n=2) with generative AI policies.

Some policies acknowledged that updates to the policies would be needed in the future (n=7), but none included actions for these future updates. Guidance on interdisciplinary collaboration with other sectors, including developers, was only sometimes provided (n=5).

WPR Critical Analysis

Definition of Equity Across the Policies

Across the reviewed policies, equity is framed in terms of ensuring fairness, non-discrimination and inclusivity, but the specifics vary based on the context and scope of each document. Common themes include the following:

- **Fairness**
 - Addressing biases in the data and decision-making processes and ensuring no group is disadvantaged are emphasized by most policies as fairness to prevent biased outcomes.
 - Equity is framed as mitigating discriminatory practices, mainly related to marginalized communities, in several policies, including the Algorithmic Impact Assessment, the Directive on Automated Decision-Making and the Canadian Guardrails for Generative AI.
- **Transparency and accountability**
 - Equity is often connected with transparency, where the use of generative AI is made apparent, and models and outcomes can be explained to users and partners.
 - Accountability to those negatively affected by generative AI use is often emphasized by policies.
 - Clearly communicating AI's decision-making process is stressed in policies such as the Algorithmic Impact Assessment and AI Guidance for Small Custodians.
- **Mitigating harm**
 - Preventing harm and ensuring that AI does not exacerbate health, economic or social inequities is a focus of several policies.
 - Broader societal impacts are considered by some policies, but rarely include environmental responsibility, such as the impact of resource extraction for technology production or the environmental impacts of model use.

- The PHSA AI Guidance for Researchers and Generative AI Guidance policies focus on preventing errors, misinformation and privacy violations, which could disproportionately affect diverse groups.
- The WHO AI governance policy and Canada’s Responsible AI Framework emphasize the importance of representative data, mitigating biases and ensuring that diverse groups are not excluded from the benefits of AI.

What the Problem Is and How It Is Framed Across the Policies

Equity is primarily framed as ensuring fairness, non-discrimination and bias prevention in AI systems across the included policies. The problematization of equity in these AI policies primarily focuses on addressing bias and ensuring fairness in the design, implementation and impact of AI systems. These policies view AI as a powerful tool that can potentially reinforce existing inequities if not carefully managed. They focus on preventing AI systems from discriminating against vulnerable or marginalized groups, particularly in sensitive sectors such as public health, government decision making and data privacy. The central concern is that AI, if not correctly managed, could amplify bias in decision-making processes, with far-reaching consequences, including unequal access to services, opportunities or protections.

The Assumptions and Presuppositions Underlying the Policies

Many policies assume that AI, if left unchecked, could deepen inequities and perpetuate bias due to biased data sets, lack of transparency or lack of human oversight. This assumption leads to solutions such as:

- the presupposition that AI could perpetuate societal biases is addressed with bias assessments and representative data to try and ensure the output is fair and equitable; and
- many policies assume that AI systems require human supervision to avoid harmful outcomes, leading to solutions such as algorithmic audits and ongoing oversight to monitor AI systems after deployment.

Policies assume fairness and privacy concerns must be addressed to build trust in AI systems. This leads to solutions such as:

- privacy protections in systems, ensuring data anonymization and informed consent; and
- accountability mechanisms such as regular reviews, third-party audits and the need for transparency about AI use and decisions.

Finally, many policies assume that addressing fairness, defined as algorithmic fairness, and mitigating bias is sufficient to address equity, which leads to solutions focused on:

- algorithmic fairness rather than broader structural issues such as access to technology or training resources; and
- bias mitigation measures that do not explicitly consider access barriers or community involvement in model development and oversight.

Consequences of the Framing, Assumptions and Problematization

The emphasis on fairness and transparency is important and addresses some immediate risks, such as fairness in terms of decision making, but does not necessarily address wider disparities or ensure that groups have equal access to AI-driven benefits. As a result, outcomes may be fairer in terms of decision making but do not always account for the broader determinants of health or access to the benefits of AI. Equity-related framing, assumptions and presuppositions within policies are compliance-based solutions. The focus on compliance can lead to legally sound solutions but may exclude diverse community voices from the development, use and governance of AI systems. This can result in policies that do not prioritize community-driven oversight or active participation of diverse communities in AI governance, leading to inequitable design and deployment. Oversight within the policies is focused on representatives from government developers and technical experts. The lack of representation from diverse communities facing inequities and the community-based organizations that serve them means that important equity-related considerations may be missed. Additionally, these policies do not typically address the environmental impacts of AI model development and use, particularly the effects of resource extraction on equity-deserving populations and the environmental impact of AI model development and use. The overall consequences are a somewhat narrower view of equity, focusing on procedural fairness while potentially overlooking more profound systemic barriers, environmental impacts and determinants that limit equitable access to AI technologies and their benefits.

Recommendations

- **Develop organizational policies for generative AI in public health that align with national governance priorities, incorporate clear standards for responsible use, embed equity-focused principles and support coordination across jurisdictions and sectors.** Policies should be co-developed with public health organizations, policy makers, technical experts and equity-deserving communities to ensure alignment with public values and ethical AI practices. Additionally, ongoing dialogue, capacity building and shared guidance on responsible and trustworthy generative AI use across the public health system is needed.
- **Public health practitioners need training on AI technologies, governance and participatory methods to develop, deploy and oversee AI systems.** This includes understanding how models are trained, with what data, how outputs are generated and how AI can perpetuate inequities. In addition to technical knowledge, practitioners must be equipped to critically evaluate AI models for accuracy, fairness, reliability and compliance with policies for the trustworthy and responsible use of AI. Participatory approaches should be integrated into training, ensuring that public health professionals can collaborate with diverse communities, partners and AI developers to co-design, assess and refine AI models in ways that are transparent, inclusive and aligned with public health goals and values.
- **Include diverse and equity-deserving communities in developing, deploying and overseeing generative AI systems.** Policies should ensure that marginalized populations, including low-income communities, racial minorities, rural residents and people with disabilities, are not only beneficiaries of AI technologies but also

active contributors in the design, testing and governance of these systems. This could include community advisory boards, public consultations and co-design processes to ensure AI tools meet the real needs of diverse groups. This can help inform how generative AI tools are used in public health in ways that consider the social determinants of health, such as income, education, race and the built environment, and how these factors shape daily living conditions and the distribution of power, resources and opportunities, while also addressing the broader social and environmental impacts of AI technologies.

- **Interdisciplinary collaboration with diverse communities, health equity experts, ethicists and those typically involved (government and public health organizations and developers) in policy and generative AI model development and deployment is needed.** Policies should promote collaborations between public health, technology, government, experts in health equity and ethics, diverse communities and community-based organizations to address the multi-faceted challenges of equity in AI use.
- **Continuous, ongoing and long-term monitoring of generative AI models and outputs is vital for equity.** Policies should require long-term monitoring and evaluation of the equity and environmental impacts of AI systems in public health. Independent oversight bodies, public health data stewardship boards and community-led audit mechanisms are some ways to support long-term monitoring and evaluation that involve the community and community-based organizations. The environmental impacts of AI, such as resource extraction (for example, mining in northern Canada), should be considered, particularly in terms of how these activities affect Indigenous populations and equity-deserving communities. This evaluation should include feedback from affected communities to measure outcomes and adjust AI systems as necessary, ensuring that environmental and social consequences are also assessed and mitigated.

Acknowledgements

Thank you to Jennifer McWhirter for her ongoing mentorship and supervision. As always, thank you very much to Jacqueline Kreller-Vanderkooy for her specialist librarian knowledge and assistance in the search protocol development. Thank you to Maroussia Lévesque, CIGI senior fellow, and Halyna Padalko, DPH doctoral fellow, for their excellent peer review. Finally, thank you to Erika Dunn and Fatima Khalid, master of public health students, for their excellent research assistance in the policy scan, content analysis and critical analysis.

About the Author

Melissa MacKay (she/her), MPH, Ph.D., is a Digital Policy Hub post-doctoral fellow who specializes in health, risk and crisis communication, as well as health promotion. Previously a post-doctoral scholar at the University of Guelph's Health by Design Lab, she focused on developing a modernized health communication framework and using artificial intelligence for tailored health communication. Her research employs qualitative and mixed methods and evidence synthesis, and emphasizes knowledge mobilization for impact. Her dissertation examined trust in public health communication during the COVID-19 pandemic and she is the lead author of the *Social Media Crisis Communication Guidebook for Public Health*. Melissa teaches in the MPH program at the University of Guelph and has extensive experience in public health and knowledge mobilization.

Appendix 1: Content Analysis Codebook

| Variable | Description |
|--|--|
| Policy Scope and Purpose | |
| Explicit mention of generative AI (Y/N) | Does the document mention generative AI (including LLMs) explicitly? (Yes/No) |
| Focus of the policy (select all that apply) | <p>Ethical use: Application of AI aligned with ethical principles such as transparency, fairness, beneficence, etc.</p> <p>Data privacy: Ensures personal information is protected, governs how data is stored/processed, addresses security</p> <p>Decision making: Leveraging AI to enhance evidence-based decisions</p> <p>Other</p> |
| Objectives of the policy (select all that apply) | <p>Ethical governance: Ensure AI operates transparently, responsibly and in alignment with ethical principles</p> <p>Data privacy and security: Protecting personal information through compliance with laws, encryption, anonymization, secure data management</p> <p>Bias and equity mitigation: Safeguards to prevent discrimination in decision making; fair and equitable outcomes for all</p> <p>Decision support: Leveraging AI to enhance evidence-based decisions, while maintaining human oversight</p> <p>Automation of administrative tasks: Streamline routine operations, such as data entry, report generation, etc.</p> <p>Other</p> |
| Approach to AI governance (select one) | <p>Safety-based approach: End goal of managing risks associated with AI. Policy focused on risks and mitigation.</p> <p>Equity-based approach: End goal of assuring rights so that systems are equitable. Policies focused on doing no harm, protecting rights, privacy and security.</p> |

| Variable | Description |
|--|---|
| Overall Perspective | |
| General tone toward AI (select one) | <p>Supportive: Encourages the adoption of AI by highlighting potential benefits and providing guidelines for use</p> <p>Cautious: Recognizes the potential but emphasizes careful evaluation, risk assessment and gradual adoption</p> <p>Restrictive: Limits or heavily regulates the use</p> <p>No use: Indicates no generative AI should be used by the organization for any reason</p> <p>Neutral: No strong endorsement or opposition</p> <p>Other</p> |
| Regulatory | |
| References to Canadian laws and regulations? (Y/N) | Y/N or N/A (international policies) |
| If yes, indicate which regulations | PIPEDA, PHIPA [Personal Health Information Protection Act] (Ontario), HIA [Health Information Act] (Alberta), Bill 64 (Quebec), AIDA, other |
| References to international frameworks? (Y/N) | Y/N |
| If yes, indicate which frameworks | WHO guidelines, OECD AI Principles, other |
| Key Risks (Taeihagh 2025) | |
| Hallucination and inaccuracies | Guidance to mitigate the risks of fabricated and inaccurate results |
| Jailbreaking | Guidance to mitigate the risks of models bypassing built-in guardrails/safety measures |
| Data training and validation | Guidance to mitigate the risks of biased, unrepresentative data and issues that result |
| Sensitive information | Guidance to mitigate the ability of models trained on sensitive data to extract personal information |
| Opacity and control | Guidance to mitigate the "black box" nature of models and how that makes it difficult to understand outputs and/or mitigate the unpredictable behaviours of models (e.g., diverse training data and data sets, data cleaning, continuous monitoring, restrictive use) |
| Design and implementation | Addresses design and implementation choices impacting risks |
| Other | Other risks such as skill degradation or the overestimation of benefits/underestimation of risks |

| Variable | Description |
|---|--|
| Ethical Considerations | |
| Transparency | Guidance on transparency regarding uses (including communicating use of AI to end users), accuracy, data sources, and/or limitations of the technology |
| Fairness and bias | Guidance on use of representative training data and/or model refinement to prevent discrimination and harms |
| Human safety | Guidance for doing no harm and/or prioritizing the needs of individuals and communities, including Indigenous peoples, and considering the institutional and public benefits of AI |
| Explainability | Guidance on explainability algorithms and/or transparency about how AI is making decisions |
| Responsibility/accountability | Guidance on accountability/ownership of actions and outcomes of systems |
| Autonomy | Guidance for autonomy and/or informed consent by ensuring people understand how AI impacts their health data and care |
| Implementation | |
| Privacy and security | Guidance on protecting privacy through anonymization, encryption and/or regulatory compliance |
| Human oversight | Guidance for human oversight at various points across use of models and/or outlines where human decisions must be made |
| Public engagement/participatory use | Guidance for a mechanism for public engagement and/or feedback on use |
| Training/education | Guidance for training and/or education for public health practitioners to learn generative AI models |
| Sustainability | |
| Environmental responsibility | Guidance on prioritizing sustainable practices and/or balancing unnecessary computational demands |
| Ongoing public engagement (Taeihagh 2025) | Guidance for continuous input from the public regarding policy decisions and the purpose of technology, not just risk mitigation |
| Interdisciplinary collaboration | Guidance for participating in interdisciplinary collaboration with other sectors, including AI developers, to develop, evaluate, improve models |
| Future updates (choose one) | <p>Acknowledges updates are needed but does not include a set of actions to guide updates</p> <p>Guidance on plans (set of actions) for updating policies as technology evolves?</p> |

Works Cited

- Attard-Frost, Blair. 2025. "The Death of Canada's Artificial Intelligence and Data Act: What Happened, and What's Next for AI Regulation in Canada?" Montreal AI Ethics Institute, January 17. <https://montrealetics.ai/the-death-of-canadas-artificial-intelligence-and-data-act-what-happened-and-whats-next-for-ai-regulation-in-canada/>.
- Bacchi, Carol. 2017. "Introducing WPR." *Carol Bacchi* (blog), November 1. <https://carolbacchi.com/about/>.
- Canadian Institutes of Health Research. 2021. "Building a Strategy for Artificial Intelligence in Public Health: Centering Partnership, Equity, and Interdisciplinarity – Public Summary." Government of Canada. December 20. <https://cihr-irsc.gc.ca/e/53244.html>.
- da Mota, Matthew. 2024. "Voluntary Codes of Practice for AI Lack Accountability." Opinion, Centre for International Governance Innovation. February 12. www.cigionline.org/articles/voluntary-codes-of-practice-for-ai-lack-accountability/.
- Davis, Steve, Saumya Singh, Nikhil Srinidhi and Matt Wilson. 2024. "Public health's inflection point with generative AI." McKinsey & Company, February 28. www.mckinsey.com/industries/social-sector/our-insights/public-healths-inflection-point-with-generative-ai.
- Field Law. 2024. "The State of AI Regulation in Canada (2024)." Field Law. August. www.fieldlaw.com/News-Views-Events/237102/The-State-of-AI-Regulation-in-Canada-2024.
- Fisher, Stacey and Laura C. Rosella. 2022. "Priorities for successful use of artificial intelligence by public health organizations: a literature review." *BMC Public Health* 22 (1), 2146. <https://doi.org/10.1186/s12889-022-14422-z>.
- Galvagna, Christine. 2023. *Inclusive AI governance: Civil society participation in standards development*. Ada Lovelace Institute. March. www.adalovelaceinstitute.org/report/inclusive-ai-governance/.
- Government of Canada. 2024. "Guide on the use of generative artificial intelligence." www.canada.ca/en/government/system/digital-government/digital-government-innovations/responsible-use-ai/guide-use-generative-ai.html.
- – –. 2025. "The Artificial Intelligence and Data Act (AIDA) – Companion document." Innovation, Science and Economic Development Canada, January 31. <https://ised-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act-aida-companion-document>.
- ISED. 2023. "Voluntary Code of Conduct on the Responsible Development and Management of Advanced Generative AI Systems." Government of Canada. September. <https://ised-isde.canada.ca/site/ised/en/voluntary-code-conduct-responsible-development-and-management-advanced-generative-ai-systems>.
- Lorenz, Phillipe, Karine Perset and Jamie Berryhill. 2023. "Initial Policy Considerations for Generative Artificial Intelligence." OECD Artificial Intelligence Working Paper No. 1. Paris, France: OECD Publishing. www.oecd.org/en/publications/initial-policy-considerations-for-generative-artificial-intelligence_fae2d1e6-en.html.
- Miller, Mark R., Connie Moon Sehat and Robert Jennings. 2024. "Leveraging AI for Public Health Communication: Opportunities and Risks." *Journal of Public Health Management and Practice* 30 (4): 616–18. <https://doi.org/10.1097/PHH.0000000000001986>.

- Panteli, Dimitra, Keyrellous Adib, Stefan Buttigieg, Francisco Goiana-da-Silva, Katharina Ladewig, Natasha Azzopardi-Muscat, Josep Figueras et al. 2025. "Artificial intelligence in public health: promises, challenges and an agenda for policy makers and public health institutions." *The Lancet Public Health* 10 (5): e428–32. [https://doi.org/10.1016/S2468-2667\(25\)00036-2](https://doi.org/10.1016/S2468-2667(25)00036-2).
- Park, Tina. 2024. "Stakeholder Engagement for Responsible AI: Introducing PAI's Guidelines for Participatory and Inclusive AI." Partnership on AI's Global Task Force for Inclusive AI. September 17. <https://partnershiponai.org/stakeholder-engagement-for-responsible-ai-introducing-pais-guidelines-for-participatory-and-inclusive-ai/>.
- Pasi, Suyash. 2025. "The Human and Environmental Impact of Artificial Intelligence." Human Rights Research Center, February 6. www.humanrightsresearch.org/post/the-human-and-environmental-impact-of-artificial-intelligence.
- Perrault, Kerry, Effah Kwabena Antwi, David Young, Aaron Jones and Stephanie Seymour. 2025. "Addressing the legacy of past mining in the Garden River First Nation Community: Perspectives and pathways to improve community engagement." *The Extractive Industries and Society* 22 (June): 101630. <https://doi.org/10.1016/j.exis.2025.101630>.
- Sookman, Barry. 2023. "Government proposals to amend AIDA: the challenges ahead Part 2." Barry Sookman, November 12. <https://barrysookman.com/2023/11/12/government-proposals-to-amend-aida-the-challenges-ahead-part-2/>.
- Taeihagh, Araz. 2025. "Governance of Generative AI." *Policy and Society* 44 (1): 1–22. <https://doi.org/10.1093/polsoc/puaf001>.
- Tawell, Alice and Gilleen McCluskey. 2022. "Utilising Bacchi's what's the problem represented to be? (WPR) approach to analyse national school exclusion policy in England and Scotland: a worked example." *International Journal of Research & Method in Education* 45 (2): 137–49. <https://doi.org/10.1080/1743727X.2021.1976750>.
- The Dais and the Centre for Media, Technology and Democracy. 2023. "Submission on the Proposed Artificial Intelligence and Data Act." The Dais. November. <https://dais.ca/reports/submission-on-the-proposed-artificial-intelligence-and-data-act/>.
- Thomassen, Kristen. 2023. "Regulation of AI in Canada." Symposium presented at the British Columbia Public Health Association Conference, Vancouver, BC, November 22. <https://phabc.org/conference-2023/>.
- Ulnicane, Inga. 2024. "Governance fix? Power and politics in controversies about governing generative AI." *Policy and Society* 44 (1): 70–84. <https://doi.org/10.1093/polsoc/puae022>.
- University of Waterloo. 2025. "Research Guides: Canadian Government Information: Get Started." University of Waterloo. 2025. <https://subjectguides.uwaterloo.ca/canadian-govinfo>.
- Wilson, Christopher. 2022. "Public engagement and AI: A values analysis of national strategies." *Government Information Quarterly* 39 (1): 101652. <https://doi.org/10.1016/j.giq.2021.101652>.
- WHO. 2024. "Ethics and governance of artificial intelligence for health: Guidance on large multi-modal models." WHO, March 25. www.who.int/publications/i/item/9789240084759.
- Yim, Dobin, Jiban Khuntia, Vijaya Parameswaran and Arlen Meyers. 2024. "Preliminary Evidence of the Use of Generative AI in Health Care Clinical Services: Systematic Narrative Review." *JMIR Medical Informatics* 12 (March): e52073. <https://doi.org/10.2196/52073>.