BIOETHICS COUNCIL CANADA
CONSEIL CANADIEN de BIOÉTHIQUE

FUTURE PROOFING TRUST IN HEALTH SCIENCE IN CANADA

POLICY BRIEF

BIOETHICS COUNCIL FOR CANADA /
CONSEIL CANADIEN DE BIOÉTHIQUE

January 2026

When we lack truth and we lack trust, law becomes theatre, news becomes spectacle and science becomes just another opinion.

Her Excellency Mia Amor Mottley, Prime Minister of Barbados,
addressing the United Nations General Assembly, September 2025

Table of Contents

FUTURE PROOFING TRUST IN HEALTH SCIENCE IN CANADA: A POLICY BRIEF FROM THE BIOETHICS COUNCIL FOR CANADA / CONSEIL CANADIEN DE BIOÉTHIQUE

Executive Summary

Future Proofing Trust in Health Science in Canada: Policy Summary
Context and Urgency

Public trust in health science is declining in Canada, mirroring global trends. While historically high, trust has eroded due to misinformation, politicization, and institutional failures.

In 2025, only **68% of Canadians trust scientists for reliable information**, down from 77% five years ago. Trust in family and friends now surpasses trust in scientists, and exposure to false information is widespread. This erosion threatens health outcomes, democratic integrity, and Canada's ability to respond to crises.

Consequences of Inaction:

- Increased vaccine hesitancy and resurgence of preventable diseases (Canada lost measles elimination status in 2025).
- Uptake of unproven therapies and financial exploitation.
- Resistance to public health measures and scientific innovation (e.g., AI in healthcare).
- Long-term risks: antimicrobial resistance, mental health crises, and collapse of health systems.

Drivers of Eroding Trust

1. **Unregulated Information Ecosystem**
    - Rampant misinformation and disinformation on social media.
    - "Scienceploitation" tactics by influencers and corporations.
    - Echo chambers reinforcing bias and polarization.
2. **Vulnerable Science Journalism**
    - Shrinking investigative reporting and fact-checking capacity.
    - Sensationalized coverage and premature claims eroding credibility.
3. **Integrity Breaches in Science**
    - Industry manipulation of research (e.g., opioids, weight-loss drugs).
    - Scientific fraud and predatory journals.
    - AI-generated content without oversight.
4. **Socio-Demographic and Political Factors**
    - Lower trust among younger Canadians, those with less education, and marginalized communities.
    - Politicization of science and historical harms to Indigenous peoples.

Policy Imperatives

The Bioethics Council for Canada (BCC-CCB) calls for **coordinated federal leadership** to safeguard trust in health science.

Key principles:

- **Integrity,**
- **Accountability,**
- **Transparency, and**
- **Inclusivity**.

1. Reinforce Integrity

- Strengthen and enforce **research integrity policies** and Codes of Practice.
- Mandate institutional transparency on integrity breaches.
- Expand ethics training to include **social responsibility**.
- Combat predatory publishing practices.

2. Require Accountability

- Hold funding recipients **accountable** for contributing to misinformation.
- Regulate and **prosecute** health science disinformation in media.
- Develop **legal frameworks** for corrective action and damages.
- Foster respectful **partnerships** with Indigenous knowledge systems.
- Support **international** accountability standards.

3. Assume Leadership

- Establish an **Office of Research Integrity and Oversight** within Innovation, Science and Economic Development Canada (ISED).
- Coordinate efforts across Health Canada, PHAC, Crown-Indigenous Relations, and other Ministries and agencies.
- Issue **national guidelines and frameworks** for trust-building and integrity.
- **Monitor** and **report** progress publicly.

Strategic Enablers

- **Transparency and Communication:** Make health science data accessible, inclusive, and clear about uncertainty.
- **Education and Literacy:** Invest in science literacy and culturally competent communication.
- **Technology Governance:** Ensure AI adoption in health care is transparent, inclusive, and accountable.
- **Crisis Preparedness:** Embed trust-building in pandemic and health emergency planning.

Conclusion

Trust in health science is foundational to Canadians' health, well-being, and resilience. Without urgent, coordinated policy action, misinformation and mistrust will undermine public health, innovation, and social cohesion.

Canada must act now to **future proof trust in science**—before the next crisis hits.

Purpose of this Brief

If unchecked, eroding public trust in health science will have grave consequences for Canadians' health, well-being, and prosperity. Coordinated policy leadership and action are urgently required.

This brief aims to support the mandates of elected and appointed federal officials who can take charge in countering health science mis- and disinformation. After documenting the extent, causes and consequences of eroding trust, the Brief provides strategic recommendations for policy action to future proof trust in health science in Canada.

A. WHAT IS TRUST IN SCIENCE AND WHY DOES IT MATTER?

What is public trust in science?[1]

Public trust in science is the strength of people's expectation or confidence that scientists are telling them the truth and that science is not being used to harm them nor exploit their vulnerabilities. People who trust science expect that scientists act for societal good, putting the public's interests above their own in pursuing knowledge that promotes understanding and fostering of human well-being. They also expect that their tax-supported scientists and scientific institutions will be worthy of their trust.

Worldwide, although trust in science has historically been high, geopolitical changes, revolutions in technology, and other factors place it at risk. High expectations are now being supplanted by mistrust and distrust of science.

- Public mistrust in science means that people's expectations of it are low or mixed. People who mistrust science believe that some scientists act in their own interests instead of for the public good, distorting or ignoring scientific facts. They may also believe that there is no way to distinguish between scientific statements that can and cannot be trusted.

- Public distrust of science is more than the absence of trust: it reflects an expectation that science is being deliberately used to exploit or take advantage of people, or to perpetuate science-caused historic harms and current injustices lived by marginalized and disenfranchised populations, including Indigenous and racialized peoples.

Trust in science is grounded in core Canadian values that scientists are expected to uphold. As affirmed by Canada's Tri-Council research agencies, these core values are: respect for persons; concern for welfare, justice and fairness; honesty, openness and transparency; trust; and accountability. Widespread mistrust and distrust of science signal erosion of these values.

➔ ***Although trust in science is a concern across all fields, the focus of this brief will be trust in health science and possible actions to protect and strengthen it.***

Why does trust in health science matter?[2]

Living in the highest attainable state of physical, mental and social well-being is a fundamental right of every human being. Concretely, trust in health science determines when, how and where people will access this right by availing themselves of services, technologies and other resources.

Eroding trust in health science can undermine the right to well-being and contribute to premature and excess illness and death, through:

- misplaced hope in unproven therapies and ineffective products and services;
- foregoing of lifesaving treatments;
- financial exploitation for unnecessary or useless treatment; and
- rejection of public health advice and measures.

For example, the COVID-19 vaccine is estimated to have saved 19.8 million lives across 185 countries in 2021, a global reduction of 63% in total expected deaths. Unvaccinated Canadians were significantly more likely to be hospitalized or to die from COVID. Unwillingness to be vaccinated was associated with lack of trust in government and public health authorities and with marginalized status. Vaccine hesitation due to lack of confidence in the vaccine likely contributed to the thousands of excess Canadian deaths from COVID.

How real and imminent is the risk of erosion of trust in health science?[3]

Patterns of trust in science mirror trust in major societal institutions. Those who least trust governments, large corporations, NGOs, and media are also least trusting of scientists. While globally, science and scientists are held in relatively high esteem, public trust in societal institutions is declining worldwide, putting trust in science at collateral risk. In Canada, trust in scientists has remained much higher than in societal institutions (business, government, media, NGOs), in journalists and in government leaders, but Canadians' trust in science and scientists is declining:

- Currently, about two-thirds (68%) of the general Canadian population report that they trust scientists for reliable information, down from 77% five years ago. The proportion stating they have confidence in scientists declined from 84% in 2021 to 75% in 2023. While over three-quarters of Canadians (78%) currently trust scientists to “do what is right,” this proportion has also declined, from 83% in 2020.
- Trust in family and friends as reliable information sources has grown, from 64% in 2021 to 73% in 2025, and is now higher than trust in scientists. Also increasing are trust in religious and spiritual leaders (up from 27% in 2021 to 34% in 2025) and in independent bloggers and social media influencers (up from 17% to 23%).

Although Canadians find scientists more trustworthy than government leaders and journalists, many scientific findings reach the public through those messengers, i.e., through media reports on science and through evidence-based government policies and programs.

- In 2025, two thirds of surveyed Canadians (67%) said they worry that government leaders purposely mislead people by saying things they know are false or gross exaggerations, up from 46% in 2022.
- The proportion of Canadians who worry about journalists’ intent to mislead the public increased from 49% to 62% from 2022 to 2025.

- In a 2018 survey, 69% percent of Canadians agreed that scientific findings are reported selectively to support news media objectives, and 63% that they are reported selectively to support political positions.
- Currently, almost half of Canadians (47%) report that they are exposed to misleading or false information at least several times weekly. Exposure to misinformation is greatest among those 18 to 42 years old (Gen Z and Millennials), who also rely most heavily on social media for news.

While only a small proportion of Canadians have unfavourable views of scientists, many have a mixed outlook, nuanced across issues. For example, Canadians' trust in scientists for information about climate change is lower, at 71%, than for information in general (78%).

Compared to other countries, Canadians' trust in science ranks in the middle range. For example, in a 2025 study of 68 countries, Canadians' confidence in scientists to act in the public interest ranked 21st, just above the international average and with the same score as Sweden, South Africa and Cameroon.

Two contrasting examples serve to illustrate the multifaceted reality of collapsing trust in health science, where preventable harms have occurred or could occur.

Public trust and vaccine hesitancy
Professor Maya J. Goldenberg, University of Guelph

"Countering vaccine hesitancy requires improving public trust in science and medicine. Trust is relational and temporal in nature (Hardin, 2002); the medical encounter between patient and primary care provider (PCP) is a pivot point for trust-building or breakdown (Charon, 2001), and thereby a vector for vaccine confidence or hesitancy. The conditions for successfully building trust in medicine are under extreme stress, and shoring up the trust infrastructure in health care must be prioritized.

A 2019 literature review on effective strategies for improving vaccine acceptance concluded that commonly employed educational and persuasive communications strategies have little impact. The most successful intervention is text or telephone reminders to patients, nudging those who already accept vaccination toward uptake and normalizing vaccination as routine healthcare. Vaccine hesitancy, however, needs more relational and customized responses that centre on building trust between provider and patient. Vaccine acceptance benefits from trusted providers engaging in effective communication, patient reminders, and vaccine education that speak to specific concerns of individuals and communities (Gagnon & Dubé, 2019).

Three priority actions to rebuild this trust infrastructure are: (i) reforming primary care billing models to allow adequate consultation time, (ii) ensuring reliable and timely access to PCPs, and (iii) training providers in culturally competent and personalized communication addressing specific patient concerns rather than generic vaccine education. These actions address the core challenge—vaccine hesitancy as fundamentally a symptom of trust breakdown (Goldenberg, 2021) —by strengthening institutional structures that allow for demonstrations of trustworthiness and counter misinformation through personalized, relational care."

Type "T" for Trust: Generative AI and the Challenges Ahead
Professor Ma'n H. Zawati, McGill University

"The rise of generative artificial intelligence (AI), with systems such as ChatGPT or Microsoft Dragon Copilot, has highlighted both the potential of science to transform health care systems and the challenges of maintaining patients and consumers trust (Ipsos, 2024). These technologies can accelerate medical research, improve patient education (Zarei Nejad & Tavana, 2025), and support healthcare innovations (Clusmann, 2023). However, their rapid adoption has also sparked public concern over misinformation (Jaidka et al., 2025), bias, and privacy (Golda et al., 2024), raising broader questions about whether medical innovation is advancing responsibly.

When trust in science is lacking, the societal reception of generative AI becomes fragmented. Some celebrate its benefits, while others distrust the motives behind them, fearing opaque algorithms and corporate control (Afroogh et al., 2024). This skepticism can lead to resistance in adopting AI in sensitive domains like medicine (Arvai, Katonai & Mesko,2025), slow regulatory development, and amplify misinformation when patients and health-conscious consumers turn to unverified sources instead of scientific expertise. The result is a weakened ability to harness AI for public health and collective well-being.

To reinforce trust in medical science, three measures stand out: (1) **Transparency**—clearly explaining to users how generative AI works, including its limitations (European Commission, 2025 *(Transparency Chapter)*; Singapore, 2024; Innovation Science and Economic Development Canada, 2023.); (2) **Inclusive governance**—involving diverse stakeholders, including ELSI experts and affected communities, in setting standards (World Health Organization, 2025.; World Health Organization, 2021); and (3) **Accountability**—ensuring robust oversight mechanisms so misuse and harms are swiftly addressed (G7, 2023; African Union, 2024; Canada, 2025; India, 2021. Japan, 2025*)*. Together, these steps can help strengthen public confidence and ensure generative AI is developed and applied responsibly in the health field."

➔ ***Canadians' trust in health science is eroding. The consequences of continued inaction have been and will continue to be costly, afflicting, and sometimes deadly.***

B. WHY IS TRUST IN HEALTH SCIENCE ERODING?

Multiple factors are converging to undermine trust in health science and scientists. Some factors are related to the nature of health-related content to which Canadians are exposed, while some mistrust is generated by scientists and science systems themselves. Canadians' sociodemographic characteristics, socioeconomic status and political orientations interact with these factors, contributing to polarization of trust and mistrust.

Some health science-related information is untrustworthy [4]

Through a widening range of sources, Canadians are increasingly exposed to health information said to be science-based. They may seek or be pushed toward health information that claims or seems to be scientific, but remain unaware or disbelieve that it could be misinformation or disinformation.

Misinformation is false assertions intended to be helpful and made without the intention to deceive or gain.

Disinformation is deliberately constructed to sway beliefs and behaviour for financial, political, or ideological advantage.

More specifically, Canadians may be unaware or disbelieve that the health information they are using is:

- **Misleading**. False assertions are so prevalent that misinformation is considered to be an enormous global threat, including to population health and to democracy. Social media influencers are a key source of misinformation and can contribute to polarization, where existing views become more extreme. Attempts by credible science organizations and clinicians to redress misinformation can backfire, increasing attention to inaccuracies or expanding misinformers' influence. Healthcare delivery organizations and providers are ill-equipped for, and unsupported in, probing for, recognizing and counteracting health mis- and disinformation in clinical communications.

- **Confirmatory of bias.** Internet echo chambers, or algorithmically constructed bubbles designed to capture and monetize the user's attention, make the user's view seem dominant while hiding alternate perspectives. Even slight changes in algorithms' message slanting can rapidly alter media users' political beliefs and opinions. If other sources of information are inaccessible or uninteresting, this may contribute to polarization, resistance to correction, and decline in institutional trust. Canadians' low level of civic education may also contribute, as it leads to avoidance of discussing issues with those who have differing opinions. Recognizing many Canadians' challenges in identifying bias, the Public Health Agency of Canada is committed to better help them identify strong, trustworthy scientific evidence.

- **Manipulative**. Information can be constructed to sway beliefs and behaviour for financial, political, or ideological advantage. These disinformation tactics, taking advantage of peoples' fears, desperation or confusion are common in the marketing of unproven therapies and wellness products. "Scienceploitation" — making something sound "sciency" to enhance its credibility — is highly effective. Profit-driven influencers spread disinformation, as do organizations posing as grassroots citizen advocacy movements that are, in reality, backed by corporate interests. In Canada, such tactics have been used by organizations claiming to promote patients' interests.

- **Overrepresenting minority or fringe views** in content cast as presenting all sides of a scientific debate. This can give the erroneous impression that scientific consensus does not exist, when in fact it does. For example, although 97% of climate scientists agree that climate change is driven by human activity, the 3% who disagree get disproportionate attention.

Governments, including Canada's, allow social media companies to self-regulate most online content, including that related to science. Now caught up in larger political issues such as freedom of speech and media giant taxation, industry self-regulation has assured that science misinformation is rampant and uncontrollable, leading to documented harms.

Nonetheless, there is growing momentum towards using and expanding existing policy and legal levers in concerted, coordinated action. Recent guidance for senior and elected officials from Québec's Chief Science Officer points, among many other actions, to existing legal avenues that can be used to obtain damages, remove publications or see corrections published, and pursue criminal convictions. Canada's Federal/Provincial/ Territorial Information Regulators have called for concerted measures to enhance the transparency and accountability of public bodies and institutions, counter misinformation, and strengthen public trust. Internationally, the Organisation for Economic Co-operation and Development (OECD) and other entities have promoted coordinated leadership to increase trustworthiness of health data systems.

Science journalism is vulnerable [5]

The lack of widely-read, high quality science journalism, investigative reporting, and fact-checking also undermines trust in science. Although specialized science journalism in Canada is strong, it remains vulnerable to media industry restructuring (widespread layoffs, unstable business models, penetration of AI, proliferation of independent media, and economic pressures), creating lost opportunities to increase science literacy or to correct or decrease susceptibility to mis- and disinformation. Simply put, science journalism cannot keep up with necessary corrections to misbeliefs and false claims. Profit-driven hype-seeking in science reporting, where benefits from scientific findings are exaggerated, leads to sensationalized or premature coverage that distorts scientific findings, disenchanting public trust when promised cures or technological advances do not appear.

Canadians' trust is being extended to social media influencers, trusted sources of science-linked information now for almost one-quarter of the population. This may be related to growing distrust of government and media described above. When the public perceives scientific expertise being compromised by political pressures or media disinformation — as was claimed about some public health experts' statements during the COVID-19 pandemic — trust in science is damaged.

Some scientists produce information that is not to be trusted [6]

Trust is earned through responsible action, yet some scientists and science-supporting organizations are generating public mistrust of science. Their irresponsible actions are not the norm, yet they receive considerable and growing attention, even in science-friendly platforms. Examples are:

- **Profit-driven industry manipulation** of scientific research and scientists. Many sectors (e.g., food, alcohol, pesticides and fossil fuels), have applied the tobacco industry's tactics of cultivating doubt, delaying action, discrediting policy efforts, and creating the illusion of scientific debate. Some companies have been convicted of purposefully damaging human health through false scientific claims about their products. Recent cases are Servier's deadly weight loss drug and Purdue Pharma's deliberate pursuit of oxycontin addiction, but examples go back to the 1960's thalidomide scandal and decades-long tobacco company harm denial.

- **Scientific fraud and breaches of integrity:** Numerous Canadian cases add to worldwide tallies. A 2022 study found 321 cases of scientific article retractions

involving Canadian-based researchers over the previous decade. Some articles were retracted because of errors and some because of plagiarism or data / image falsification or fabrication. An earlier survey of organizations accounting for 60% of Canada's research activity found they dealt with more than one allegation of research fraud every year, with large universities addressing 2.2 cases per year. Integrity breaches were found to be underreported and systematically covered up by self-protective institutions. Fraud also occurs among scientists in non-university contexts: integrity breaches including data fabrication were reported among 133 federal government researchers from 2011 to 2019.

- **Substandard scientific publications:**
  Scientific publishing is now plagued by substandard predatory journals that appear legitimate but operate from a profit motive. For scientists, publications are far more than a dissemination channel, because publication performance metrics determine their merit for research funding, jobs and promotions in highly competitive environments. This context creates prey for these journals, which have deficient or absent peer review and self-amplifying citation practices.

  Although some scientific journals allow AI contributions for defined elements of scientific publications and intelligent, rigorous use of AI can support research ethics and integrity, there is evidence of unacknowledged and undetected AI-generated publications and peer reviews. Recent mediatized cases have identified AI-generated gibberish in supposedly peer-reviewed research articles, highlighting lack of effective oversight.

Longer term solutions for these issues could include enhanced researcher training in scientific integrity and restructuring of academic incentive systems. In the shorter term, extending the adoption of trustworthy practices across research and clinical contexts in health data collection, sharing and use, such as those recommended by the Health Research Data Network, will contribute to improved health data literacy and trust among the public. Meanwhile, solutions are already emerging from some health science journals: for example, The Lancet has now instituted measures to address mis- and disinformation in editorial processes, science communication, and social media response.

Some Canadians are more likely to mistrust science[7]

There are differences in trust levels among demographic subgroups of the Canadian population, masked by whole-population statistics. Institutional trust is polarized:

- Within the overall population, Canadians with lower educational attainments, lower incomes, and from historically disenfranchised communities have the lowest levels of institutional trust.
- Mistrust is higher among younger age cohorts and those with no post-secondary education. Gen Z males (born 1997-2012) are the most distrustful segment of the Canadian population.
- Institutional trust also varies regionally: it grew between 2020 and 2024 in the Prairies, Quebec and Atlantic Canada but declined in BC.
- The difference in trust between higher and lower income people is somewhat smaller in Canada than in other countries, largely because higher-income Canadians' trust is only moderate.

Those more familiar with science trust it more:

- Canadians with at least some postsecondary education, and who are therefore more likely to have been exposed to science education, are almost twice as likely to have a lot of confidence in scientists compared to those with high school education or less.
- Canadians who prefer to rely on gut feelings, personal beliefs or intuition over facts tend to have less than high school education.

Although Canadians strongly trust their family and friends for reliable information, only about one third (34%) of surveyed families have a member who has science-related skills, qualifications, jobs or interests. People who are less aware of, or less interested in, science may be less likely to question the trustworthiness of information said to be science-based.

Trust in science is also politicized:

- Canadians on the political right have lower levels of trust in science. This leftwing-rightwing political divide is consistent across many countries, with anti-science views becoming more dominant as right wing populism surges worldwide.
- European observers have documented how the far-right political movement, in a form of ideological disinformation, has come to instrumentalize public health issues in racist propaganda such as blaming racialized minorities for epidemics.

In Canada, trust in health science is also scarred by instances of abusive, degrading and rights-depriving research and medical activity that caused enduring trauma to marginalized peoples, notably Indigenous populations, who were subjected to medical research harms. However, federal policy, including the Public Health Agency of Canada's current Science Strategy, is becoming committed to reversing the exclusion of First Nations, Inuit, and Métis knowledge systems in science.

Many Canadians' understanding of science is inaccurate, as less than two-thirds (63%) consider themselves to be science-literate. Science by nature is continually self-correcting, so critical questioning of material presented as factual is healthy and desirable. However, while about 80% of Canadians are comfortable knowing that scientific answers may not be definitive, trust in science is lessened by media communications that portray scientific self-correction as incompetence and incoherence, and by overly definitive or dogmatic science-based messages that are later changed. Messy scientific and government communications during the COVID-19 pandemic contributed to suboptimal policy and public response.

➔ ***Multiple factors are causing erosion of Canadians' trust in health science. They include lack of social media platform regulation, vulnerable science journalism, breaches of scientific ethics and integrity, limited understanding of science, and polarization and politicization of trust.***

C. WHAT MUST BE DONE TO FUTURE PROOF TRUST IN HEALTH SCIENCE? [8]

The Bioethics Council for Canada / Conseil canadien de bioéthique is deeply concerned about the risks to trust in health science in Canada, and in particular about incipient erosion of the core values mentioned above and upheld by, among many others, Canada's standard-bearing Tri-Council research agencies: **respect for persons; concern for welfare, justice and fairness; honesty, openness and transparency; trust; and accountability**. The BCC-CCB is thus committed to, along with partners, stakeholders and rights-holders, protecting

these values by providing effective policy avenues to future proof Canadians' trust in health science.

The underlying determinants of these problems are complex and entrenched, suggesting that solutions lie far upstream. As the International Science Council's Centre on Science Futures report on reframing trust in science (2023) states:

> "The traditional linear model of disseminating scientific knowledge to policy-makers and the public is outdated. It ignores the contexts affecting the science–policy–society interface and assumes that trust in science is solely a matter of educating the public and addressing misinformation (p.19)...Trustworthiness [in the messenger] is more important than trust in [the] messages" (p. 22).

Important steps are already being taken on this pathway. In a 2023 report sponsored by Innovation, Science and Economic Development Canada (ISED) and titled *Fault Lines: Socioeconomic Impacts of Science and Health Misinformation,* an expert panel of the Council of Canadian Academies (CCA) suggested feasible-for-Canada leading practices to prevent and correct science misinformation harms. Recommended strategies addressed: better understanding of the sources and spread of misinformation; and responding to misinformation strategies through techniques that improve trust, quality, and uptake of scientific information.

In another leading step, the Public Health Agency of Canada's Science Strategy 2024–25 to 2029–30 is promoting trust in science by:

- Ensuring operational transparency and openness about its data and science;
- Making information accessible, inclusive, and tailored to the needs of different audiences;
- Better understanding how to most effectively reach equity-deserving populations;
- To boost resiliency to mis- and disinformation, working with partners to promote science and health literacy;
- Building its capacity in to clearly communicate uncertainty in the face of health threats; and
- Committing to reconciliation and cultural humility.

Furthermore, other government departments and agencies, including the Office of the Chief Science Advisor for Canada, are committing to redressing and preventing the harms to health by rebuilding trust in their science, for example by requiring and monitoring departmental science integrity policies. Evidence-based guidance promoting individual and institutional discernment and judgement about mis- and disinformation and science integrity has been issued for elected and government officials and for scientists, with attention to intervention implementability and scalability.

Meanwhile, the evidence base about the effectiveness of recommended practices is building. For example, a recent large review of inoculation (pre-informing audiences about the techniques used in misinformation) and debunking (providing reliable, independent, fact-checked validation and correction), cited as promising in several of the above-cited guidance documents, showed these interventions to have only small to moderate effects that are not generalized beyond specific myths or misbeliefs. In other words, rigorous science is continuing to self-correct, developing ever more effective population-level interventions: but the challenges and dangers of eroding trust in science are persistent and proliferating.

Future proofing trust in science is far more than redressing mis- and disinformation already in play. More importantly, it means equipping Canada and Canadians to effectively leverage science in future crises. A recent forecasting study found potentially high impact health disruptions looming on the near horizon, including:

- Widespread antimicrobial resistance, affecting Canadians' health as well and safety and security of their food supply;
- Collapse of healthcare systems, where they are unable to serve basic health care, let alone face crises such as a new pandemic; and
- Deterioration of population mental health to epidemic levels.

Across all fields, the most prominent expected disruption—high likelihood, high impact, on the doorstep—also applies to health information: people can no longer tell what is true and what is not.

And, a direct and dangerous consequence of public mistrust in health science has just landed: the vaccine scepticism noted above has led to pan-Canadian measles outbreaks so significant that Canada has now lost its measles elimination status with the Pan-American Health Organization.

➔ ***The challenges and dangers of eroding trust in science are persistent and proliferating. Action is urgently needed.***

D. THE BCC-CCB COMMITMENT TO FUTURE PROOFING TRUST IN HEALTH SCIENCE: STRATEGIC RECOMMENDATIONS

Driven by core values, guided by best evidence, and open to evolving questions, the BCC-CCB is committed to providing effective policy avenues to future proof trust in health science and to addressing the trust determinants covered in this Brief. The BCC-CCB recommends strategic action by elected and appointed federal officials and their provincial and territorial counterparts, to:

1. *REINFORCE INTEGRITY:*
    a. Strengthen and enforce institutional and professional research **integrity policies** and **Codes of Practice;**
    b. Incentivize **transparency** from institutions about breaches of scientific integrity;
    c. Expand **training** in health research ethics to address **scientific integrity and social responsibility** in the health sciences;
    d. **Fetter predatory journals.**

2. *REQUIRE ACCOUNTABILITY:*
    a. Require health science funding bodies to hold their recipients **accountable** when they **contribute to mis-and disinformation;**
    b. Based on existing journalistic codes of conduct, **call out mis-and disinformation** in mainstream and social media **science journalism**;
    c. To ensure delivery of accurate and understandable health information to the population and to patients, use current and emerging legal avenues to **regulate** and **prosecute health science mis- and disinformation** promulgated through social and other media;

d. With First Nations, Inuit, and Métis partners, foster respectful collaboration among knowledge systems to advance **accountable health science partnerships**;
e. Support **international efforts** that emphasize **accountability.**

3. ASSUME LEADERSHIP:

Rigorous development and strategic implementation of these policy recommendations require **leadership, oversight and monitoring**. Considering the nature and various *loci* of the jurisdictional and professional responsibilities involved, we recommend:

a. **Consolidate existing momentum and functions** in an Office of Research Integrity and Oversight within Innovation, Science and Economic Development Canada (ISED) to **coordinate and stimulate policy and action** on future proofing trust in science.
    - This Office would serve as a **coordinating body**, working closely with departments such as Health Canada, the Public Health Agency of Canada, Department of National Defence, Environment and Climate Change, Natural Resources Canada, and Crown-Indigenous Relations and Northern Affairs Canada, and bodies such as the Offices of the Information and Privacy Commissioners of Canada.
    - Its role would be to **align efforts across government** to uphold scientific integrity and foster public trust in science.
    - It would develop and issue **guidelines, frameworks, and directives** for building trustworthiness and thereby promoting public trust in science while engaging with the broader scientific community on key related issues.

Conclusion

Policy avenues are available to redress and prevent widespread harms to Canadians and Canada from erosion of public trust in health science. Future crises are inevitable, and even the most innovative and effective research advances will not be useful if trust is not preserved. It has never been more urgent to future proof Canadians' trust in science.

KEY REFERENCES

- Bureau du scientifique en chef du Québec, 2025. Naviguer dans les désordres de l'information: Un guide sur la mésinformation, la désinformation et la malinformation pour les titulaires de charge publique du Québec. Fonds de recherche du Québec.
- Council of Canadian Academies. 2023. Fault Lines: Socioeconomic Impacts of Science and Health Misinformation.
- Edelman, 2025. Edelman Trust Barometer, Canada Report 2025.
- Health Data Research Network, 2025. Public Trust, Literacy and Health Data Foundations in Canada: A Foundational Paper.
- Leger, 2018. Canadian Science Attitudes Research. Ontario Science Centre.
- Proof Strategies, 2025. CanTrust Index 2025.
- Policy Horizons, 2024. Disruptions on the Horizon 2024.
- Public Health Agency of Canada. 2024. Science Strategy 2024–25 to 2029–30: Advancing health, well-being, and equity through science.

This brief was developed from the background report *Trust in Science* prepared for the BCC by Alessandro Marcon and Marco Zenon, University of Alberta, June 2025.

About the Bioethics Council for Canada. BCC-CCB's mission is to address issues that Canadians face today in accessing timely, accurate bioethics analysis and advice for anticipating and responding to issues that impact their lives. Composed of Canadian experts in bioethics, it is supported by an International Advisory Committee of nationally and internationally acclaimed bioethics experts.

Executive:

- Chair: Pr. Bartha Maria Knoppers (QC)
- Vice Chair: Dr. Judy Illes (BC)
- Vice Chair: Pr. Ross Upshur (ON)
- Treasurer: Pr. Jennifer Chandler (ON)
- Secretary: Pr. Vardit Ravitsky (USA)

Board of Directors:

- Dr. Naveed Aziz (ON)
- Dr. Daniel Buchman (ON)
- Pierre Deschamps (QC)
- Mylène Deschênes (QC)
- Dr. Bashir Jiwani (BC)
- Pr. Malcom King (SK)
- Pr. Daryl Pullman (NL)
- Dr. Eric Racine (QC)
- Pr. Barbara von Tigerstrom (SK)

Serge Buy, BCC/CCB Chief Operating Officer

International Advisory Committee

- Pr. Tania Bubela (Kenya), Chair
- Dr. Dafna Feinholz (France)
- Dr. Michèle Stanton-Jean (QC)
- Katherine Littler (Switzerland)
- Dr. Eric Meslin (ON)

Research & Administration

- Natalie Kishchuk, Scientific Writer
- Alessandro Marcon, Researcher
- Marco Zenone, Researcher
- Kayla Bimm, Administration and Design

Contact: Bartha Maria Knoppers, Board Chair, bknoppers@bcc-ccb.ca., Serge Buy, Chief Operating Officer, sbuy@bcc-ccb.ca

SOURCES BY SECTION

(this would not appear in the report: the superscripts would be hyperlinks to separate documents)

What is trust in science and why does it matter?

[1]What is public trust in science? Sources

Council of Canadian Academies. 2023. Fault Lines: Available from: https://cca-reports.ca/reports/the-socioeconomic-impacts-of-health-and-science-misinformation/

Geransar, R. (2015). Trust. In: ten Have, H. (eds) Encyclopedia of Global Bioethics. Springer, Cham. https://doi.org/10.1007/978-3-319-05544-2_426-1

Lee AY, Moore RC, Hancock JT. Designing misinformation interventions for all: Perspectives from AAPI, Black, Latino, and Native American community leaders on misinformation educational efforts. Harv Kennedy Sch Misinformation Rev. 2023 Feb 7.

Mayer, R. C., Davis, J. H., and Schoorman, F. D., 1995. An integrative model of organizational trust, Academy of Management Review 20 (3) (1995), pp. 709–734.

Rotter, J. B., 1971. Generalized expectancies for interpersonal trust, American Psychologist 26 (5) (1971), pp. 443–452.

Tri-Agency, 2021. Responsible Conduct of Research. https://rcr.ethics.gc.ca/eng/framework-cadre-2021.html.

Tri-Agency, 2022. Research Ethics Framework. Ethics.https://ethics.gc.ca/eng/tcps2-eptc2_2022_chapter1-chapitre1.html#

[2] Why does trust in health science matter? Sources

Dam, D, Merali S, Chen M, Coulby C, Ho Mi Fane B, Bang F, Robson J, David S. COVID-19 outcome trends by vaccination status in Canada, December 2020–January 2022. Can Commun Dis Rep 2024;50(1/2):40–8. https://doi.org/10.14745/ccdr.v50i12a05. https://www.canada.ca/content/dam/phac-aspc/documents/services/reports-publications/canada-communicable-disease-report-ccdr/monthly-issue/2024-50/issue-1-2-january-february-2024/ccdrv50i12a05-eng.pd

Editor. (2022), Lives saved by COVID-19 vaccines. J Paediatr Child Health, 58: 2129-2129. https://doi.org/10.1111/jpc.16213

Frank, K., Arim, R. 2021. Canadians' willingness to get a COVID-19 vaccine when one becomes available: What role does trust play? Statistics Canada, Catalogue no. 45280001, ISSN 2818-1182. https://www150.statcan.gc.ca/n1/en/pub/45-28-0001/2020001/article/00043-eng.pdf?st=_3vgWwZ0

Frank, K., Arim, R. 2021. Canadians' willingness to get a COVID-19 vaccine: Group differences and reasons for vaccine hesitancy. Statistics Canada, Catalogue no. 45280001, ISSN 2818-1182, https://www150.statcan.gc.ca/n1/en/pub/45-28-0001/2020001/article/00073-eng.pdf?st=RNl3UWyN

Global Measles Vaccination. CDC. 2025 [cited 2025 Jun 9]. Available from: https://www.cdc.gov/global-measles-vaccination/data-research/global-measles-outbreaks/index.html

Hotez P. America and Europe's new normal: the return of vaccine-preventable diseases. Pediatr Res. 2019 Jun;85(7):912–4.

Increases in vaccine-preventable disease outbreaks threaten years of progress, warn WHO, UNICEF, Gavi. World Health Organization. 2025 [cited 2025 Jun 9]. Available from: https://www.who.int/news/item/24-04-2025-increases-in-vaccine-preventable-disease-outbreaks-threaten-years-of-progress--warn-who--unicef--gavi

Lubanga AF, Bwanali AN, Kangoma M, Matola Y, Moyo C, Kaonga B, et al. Addressing the re-emergence and resurgence of vaccine-preventable diseases in Africa: A health equity perspective. Hum Vaccines Immunother.

20(1):2375081.

McKee C, Bohannon K. Exploring the Reasons Behind Parental Refusal of Vaccines. J Pediatr Pharmacol Ther JPPT. 2016;21(2):104–9.

Measles and Rubella Weekly Monitoring Report — Canada.ca. Public Health Agency of Canada. 2025 [cited 2025 Jun 9]. Available from: https://health-infobase.canada.ca/measles-rubella/

Measles. Government of Alberta. 2025 [cited 2025 Jun 9]. Available from: https://www.alberta.ca/measles

Novilla MLB, Goates MC, Redelfs AH, Quenzer M, Novilla LKB, Leffler T, et al. Why Parents Say No to Having Their Children Vaccinated against Measles: A Systematic Review of the Social Determinants of Parental Perceptions on MMR Vaccine Hesitancy. Vaccines. 2023 May 2;11(5):926.

Peterson J, Wilson T, Gruhl J, Davis S, Olsen J, Parsons M, et al. Timing and Motivations for Alternative Cancer Therapy With Insights From a Crowdfunding Platform: Cross-sectional Mixed Methods Study. JMIR Cancer. 2022 Jun 7;8(2):e34183.

Statistics Canada. 2024, Provisional deaths and excess mortality in Canada dashboard. https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2021028-eng.htm

Sun LH. Growing vaccine hesitancy fuels measles, chickenpox resurgence in U.S. Washington Post. 2022 Dec 27 [cited 2023 May 12]. Available from: https://www.washingtonpost.com/health/2022/12/26/vaccine-hesitancy-measles-chickenpox-polio-flu/

Vergano D. The Brainwashing Campaign That Is Measles Misinformation. Scientific American. 2025 [cited 2025 Jun 9]. Available from: https://www.scientificamerican.com/article/measles-vaccine-denial-is-a-massive-brainwashing-campaign/

WHO. 2005. Constitution, https://apps.who.int/gb/bd/PDF/bd47/EN/constitution-en.pdf?ua=1)

[3] **How real and imminent is the risk of erosion of trust in health science? Sources**

African Union, 2024. Continental Artificial Intelligence Strategy;

Afroogh, S., Akbari, A., Malone, E., Kargar, M. and Alambeigi, H., 2024. Trust in AI: progress, challenges, and future directions. Humanities and Social Sciences Communications, 11(1), pp.1-30.

Arvai, N., Katonai, G. and Mesko, B., 2025. Health care professionals' concerns about medical AI and psychological barriers and strategies for successful implementation: scoping review. Journal of Medical Internet Research, 27, p.e66986.

Asad, M. and Faran, N., 2025. The misinformation risks of generative ai in health care: A patient-centered perspective. Journal of Patient Safety, 21(4), pp.e21-e23.

Canada, 2025. Guide on the use of generative artificial intelligence.

Canadian Journalism Foundation, 2025. Digital deception now a 'daily reality' for nearly half of Canadians, new survey reveals. https://cjf-fjc.ca/digital-deception-omni-2025/

Canadian Medical Association (CMA), Abacus Data. Canadian Medical Association 2025 health and media annual tracking survey. 2nd edition. Ottawa: The Association; 2025 Jan. https://digitallibrary.cma.ca/link/digitallibrary761

Charon R. Narrative Medicine: A Model for Empathy, Reflection, Profession, and Trust. JAMA. 2001;286(15):1897–1902. doi:10.1001/jama.286.15.1897

Clusmann, J., Kolbinger, F.R., Muti, H.S., Carrero, Z.I., Eckardt, J.N., Laleh, N.G., Löffler, C.M.L., Schwarzkopf, S.C., Unger, M., Veldhuizen, G.P. and Wagner, S.J., 2023. The future landscape of large language models in medicine. Communications Medicine, 3(1), p.141.

Cologna V, Mede NG, Berger S, Besley J, Brick C, Joubert M, et al. Trust in scientists and their role in society

across 68 countries. Nat Hum Behav. 2025 Apr;9(4):713–30.

Edelman 2025 Edelman Trust Barometer, Canada Report 2025. Available from: https://www.edelman.ca/sites/g/files/aatuss376/files/2025-03/2025%20Edelman%20Trust%20Barometer_Canada%20Report_MASTER.pdf

Edelman. 2021. 2021 Edelman Canadian Trust Barometer, https://www.edelman.ca/sites/g/files/aatuss376/files/trust-barometer/2021%20Canadian%20Edelman%20Trust%20Barometer_0.pdf

Environment and Climate Change Canada (ECCC). 2022. PARCA Longitudinal Study Wave 1. Available from: https://impact.canada.ca/en/behavioural-science/parca/wave-1#s10

European Commission, 2025. Code of Practice for General-Purpose AI Models (Transparency Chapter)

Funk, C, Tyson, A., , Kennedy, B, Johnson, C. 2020. Science and Scientists Held in High Esteem Across Global Publics. Pew Research Center. 2020. https://www.pewresearch.org/science/2020/09/29/science-and-scientists-held-in-high-esteem-across-global-publics

G7, 2023. International Code of Conduct for Organizations Developing Advanced AI Systems

Gagnon, A., Dube, E. Literature Review on Effective Strategies to Improve Vaccine Acceptance and Uptake. CANVax, 2019. https://www.canvax.ca/sites/default/files/2019-02/Literature%20Review%20on%20Effective%20Strategies%20to%20Improve%20VAU_3.pdf

Ghasemi O, Cologna V, Mede NG, Stanley SK, Strahm N, Ross R, et al. Gaps in public trust between scientists and climate scientists: a 68 country study. Environ Res Lett. 2025 May;20(6):061002.

Golda, A., Mekonen, K., Pandey, A., Singh, A., Hassija, V., Chamola, V. and Sikdar, B., 2024. Privacy and security concerns in generative AI: a comprehensive survey. IEEE Access, 12, pp.48126-48144.

Goldenberg, M. J. (2021). Vaccine Hesitancy: Public Trust, Expertise, and the War on Science. University of Pittsburgh Press. https://doi.org/10.2307/j.ctv1ghv4s4

Hardin, R. Trust and Trustworthiness. Russell Sage, 2002.

India, 2021. Principles for Responsible AI.

Innovation Science and Economic Development Canada, 2023. Voluntary Code of Conduct on the Responsible Development and Management of Advanced Generative AI Systems.

Ipsos, 2024. Public trust in AI: implications for policy and regulation, pp. 22 et seq.; See also Ipsos, 2025. The IPSOS AI Monitor 2025. See also: Sagona, M., Dai, T., Macis, M. and Darden, M., 2025. Trust in AI-assisted health systems and AI's trust in humans. npj Health Systems, 2(1), p.10.

Jaidka, K., Chen, T., Chesterman, S., Hsu, W., Kan, M.Y., Kankanhalli, M., Lee, M.L., Seres, G., Sim, T., Taeihagh, A. and Tung, A., 2025. Misinformation, disinformation, and generative AI: Implications for perception and policy. Digital Government: Research and Practice, 6(1), pp.1-15.

Japan, 2025. Act on Promotion of Research and Development and Utilization of Artificial Intelligence-Related Technologies (Draft Bill).

Leger 2018. Canadian Science Attitudes Research. Ontario Science Centre. Available from: https://www.ontariosciencecentre.ca/media/3319/science_literacy_report2018.pdf

Lupia, A., D.B. Allison, K.H. Jamieson, J. Heimberg, M. Skipper, & S.M. Wolf, Trends in US public confidence in science and opportunities for progress, Proc. Natl. Acad. Sci. U.S.A. 121 (11) e2319488121, https://doi.org/10.1073/pnas.2319488121 (2024).

Parkin A. Confidence in Leaders. Environics Institute. 2023. Available from: https://www.environicsinstitute.org/projects/project-details/confidence-in-leaders

Pew Research Center. 2020. Public Views About Science in Canada. Available from:

https://www.pewresearch.org/science/fact-sheet/public-views-about-science-in-canada/

Proof Strategies 2024. CanTrust Index Results Report 2024. Available from: https://proofagency.wpenginepowered.com/wp-content/uploads/2024/02/Proof-Strategies-CanTrust-Index-2024.pdf

Proof Strategies 2025. CanTrust Index 2025. Proof Strategies. 2025. Available from: https://proofagency.wpenginepowered.com/wp-content/uploads/2025/02/Proof-Strategies-CanTrust-Index-2025-FINAL.pdf

Singapore, 2024. Model AI Governance Framework for Generative AI;

World Health Organization, 2025. Ethics and governance of artificial intelligence for health: Guidance on large multi-modal models. Geneva. p. 55

Zarei Nejad, M., Tavana, P. (2025). Application of Generative AI in Patient Engagement. In: Zamanifar, A., Faezipour, M. (eds) Application of Generative AI in Healthcare Systems. Springer, Cham. https://doi.org/10.1007/978-3-031-82963-5_5

Why is trust in health science eroding?

[4] Some health science information is untrustworthy: Sources

Afroogh, S., Akbari, A., Malone, E., Kargar, M. and Alambeigi, H., 2024. Trust in AI: progress, challenges, and future directions. Humanities and Social Sciences Communications, 11(1), pp.1-30.

Ahmed, S. 2024. What's in Bill C-63, and why we are alarmed. BC Civil Liberties Association, https://bccla.org/2024/09/whats-in-bill-c-63-why-are-we-alarmed/

Allen, J, Tucker, J. Platform-independent experiments on social media. Science 390,883-884 (2025).DOI:10.1126/science.aec7388; https://www.science.org/doi/10.1126/science.aec7388

Arora, V., Bloomgarden, E., Jain, S. (2022). Supporting Health Care Workers to Address Misinformation on Social Media. New England Journal of Medicine 386 (18)doi:10.1056/NEJMp2117180. https://www.nejm.org/doi/full/10.1056/NEJMp2117180

Avin C, Daltrophe H, Lotker Z. On the impossibility of breaking the echo chamber effect in social media using regulation. Sci Rep. 2024 Jan 11;14(1):1107.

Bureau du scientifique en chef du Québec, Fonds de recherche du Québec (2025). Naviguer dans les désordres de l'information: Un guide sur la mésinformation, la désinformation et la malinformation pour les titulaires de charge publique du Québec. https://www.scientifique-en-chef.gouv.qc.ca/app/uploads/2025/10/frq_guide_v11_web.pdf

Canada Waits - Your One Stop for Health Care Data. SecondStreet.Org. 2025. Available from: https://secondstreet.org/canada-waits/

Canadian Cancer Society on X "During Joe Rogan's podcast on January 9, Mel Gibson promoted drugs that are not scientifically proven cancer treatments. Misinformation on cancer treatment is dangerous, cruel, irresponsible and gives false hope to people with cancer and their loved ones." 2025 [cited 2025 Jun 9]. Available from: https://x.com/cancersociety/status/1877819687821594661

Council of Canadian Academies. 2023. Fault Lines: Available from: https://cca-reports.ca/reports/the-socioeconomic-impacts-of-health-and-science-misinformation/

Dean, K. 2021. Google's negligence on fake reviews is yet another reason to take action against Big Tech. Toronto Star. 2021 Available from: https://www.thestar.com/opinion/contributors/google-s-negligence-on-fake-reviews-is-yet-another-reason-to-take-action-against-big/article_25a7947b-dcbb-5ba6-a956-1f008a0f10ab.html

Dubois E, Blank G. The myth of the echo chamber. 2018 Available from: https://www.oii.ox.ac.uk/news-events/the-myth-of-the-echo-chamber/

Ecker U, Roozenbeek J, van der Linden S, Tay LQ, Cook J, Oreskes N, et al. Misinformation poses a bigger threat to democracy than you might think. Nature. 2024 Jun;630(8015):29–32.

Ecker UKH, Lewandowsky S, Cook J, Schmid P, Fazio LK, Brashier N, et al. The psychological drivers of misinformation belief and its resistance to correction. Nat Rev Psychol. 2022 Jan;1(1):13–29.

Hawke B, Przybylo AR, Paciulli D, Caulfield T, Zarzeczny A, Master Z. How to Peddle Hope: An Analysis of YouTube Patient Testimonials of Unproven Stem Cell Treatments. Stem Cell Rep. 2019 Jun 11;12(6):1186–9.

Kataite, S. 2025 . Canada has a disinformation problem—and the tools to fix it. Canadian Centre for Policy Alternatives. https://www.policyalternatives.ca/news-research/canada-has-a-disinformation-problem-and-the-tools-to-fix-it/

Kishchuk O. Canadians Lack Basics of Civic Education and It's Impacting Our Democracy. Abacus Data. 2024. Available from: https://abacusdata.ca/canadians-lack-basics-of-civic-education/

Koehler DJ. Can journalistic "false balance" distort public perception of consensus in expert opinion? J Exp Psychol Appl. 2016 Mar;22(1):24–38

Lee AY, Moore RC, Hancock JT. Designing misinformation interventions for all: Perspectives from AAPI, Black, Latino, and Native American community leaders on misinformation educational efforts. Harv Kennedy Sch Misinformation Rev. 2023 Feb 7.

Lewandowsky S, Ecker UKH, Cook J, van der Linden S, Roozenbeek J, Oreskes N, et al. Liars know they are lying: differentiating disinformation from disagreement. Humanit Soc Sci Commun. 2024 Jul 31;11(1):1–14.

Lewandowsky S, Ecker UKH, Cook J, van der Linden S, Roozenbeek J, Oreskes N. Misinformation and the epistemic integrity of democracy. Curr Opin Psychol. 2023 Dec 1;54:101711

Metricool 2025. What Social Media Platform Pays the Most in 2025? Available from: https://metricool.com/which-social-media-platform-pays-most/

Mundie, J. 2023. Canadians will no longer have access to news content on Facebook and Instagram, Meta says. https://www.cbc.ca/news/politics/online-news-act-meta-facebook-1.6885634

Murdoch B, Zarzeczny A, Caulfield T. Exploiting science? A systematic analysis of complementary and alternative medicine clinic websites' marketing of stem cell therapies. BMJ Open. 2018 Feb 1;8(2):e019414.

NASA. 2025 Do climate scientists agree on climate change? . https://science.nasa.gov/climate-change/faq/do-scientists-agree-on-climate-change/

O'Connor A, Gilbert C, Chavkin S. The food industry pays 'influencer' dietitians to shape your eating habits. The Washington Post. 2023. Available from: https://www.washingtonpost.com/wellness/2023/09/13/dietitian-instagram-tiktok-paid-food-industry/

Office of the Information Commissioner of Canada (2025). Trust, transparency, and democracy in an era of misinformation. Resolution of the Federal, Provincial and Territorial Information Commissioners and Ombuds responsible for overseeing access to information (FPT Information Regulators), Banff, Alberta, October 8, 2025. https://www.oic-ci.gc.ca/en/resources/news-releases/canadas-information-regulators-call-their-respective-governments-promote#trust

Reynolds E. Instagram's pro-anorexia ban made the problem worse. Wired. 2016 ; Available from: https://www.wired.com/story/instagram-pro-anorexia-search-terms/

Sanchez G, Middlemass K. Misinformation is eroding the public's confidence in democracy. Brookings. 2022. Available from: https://www.brookings.edu/articles/misinformation-is-eroding-the-publics-confidence-in-democracy/

Snyder J. Exploiting Hope: How the Promise of New Medical Interventions Sustains Us--and Makes Us Vulnerable. Oxford, New York: Oxford University Press; 2020.

Sutharsan S. TikTok blocks #SkinnyTok due to extreme weight loss, disordered eating content. CBC News. 2025 Jun 5.Available from: https://www.cbc.ca/news/tiktok-skinnytok-ban-1.7552776

Sutherland, E. 2025. OECD. Collective Action to Facilitate the Use and Protection of Health Data. (Scaling fast while doing no harm) Canadian Health Data Summit.

Viehbeck S, Girling K, Dunn E. A Science Strategy for the Public Health Agency of Canada. Can Commun Dis Rep. 2025 May 1;51(5):157-159. doi: 10.14745/ccdr.v51i05a01. PMID: 40823010; PMCID: PMC12356362.

Zenone M, Kenworthy N. Pre-emption strategies to block taxes on sugar-sweetened beverages: A framing analysis of Facebook advertising in support of Washington state initiative-1634. Glob Public Health. 2021 Sep 19;0(0):1–14.

Zenone M, Kenworthy N. Should WHO partner with TikTok to combat misinformation? The Lancet. 2024 Nov 23;404(10467):2046–7.

Zenone M, Schalkwyk M van, Hartwell G, Caulfield T, Maani N. Selling Misleading "Cancer Cure" Books on Amazon: Systematic Search on Amazon.com and Thematic Analysis. J Med Internet Res. 2024 Oct 8;26(1):e56354.

Zenone M, Snyder J, van Schalkwyk M, Bélisle-Pipon JC, Hartwell G, Caulfield T, et al. Alternative cancer clinics' use of Google listings and reviews to mislead potential patients. BJC Rep. 2024;2(1):55.

[5] Science journalism is vulnerable: Sources

Caulfield T. Science and the Uncertainty Dance. The Royal Society of Canada. 2021.Available from: https://rsc-src.ca/en/voices/science-and-uncertainty-dance

Intemann K. Understanding the Problem of "Hype": Exaggeration, Values, and Trust in Science. Can J Philos. 2022 Apr;52(3):279–94.

Lewandowsky S, Holford D, Schmid P. Public policy and conspiracies: The case of mandates. Curr Opin Psychol. 2022 Oct 1;47:101427.

Master Z, Resnik DB. Hype and public trust in science. Sci Eng Ethics. 2013 Jun;19(2):321–35.

Murdoch B, Caulfield T. COVID-19 lockdown revisionism. CMAJ. 2023 Apr 17;195(15):E552–4.

Murdoch B. How denial of airborne COVID transmission broke the world. Healthy Debate. 2025. Available from: https://healthydebate.ca/2025/03/topic/denial-airborne-covid-transmission/

Schäfer MS. How Changing Media Structures Are Affecting Science News Coverage. In: Jamieson KH, Kahan DM, Scheufele DA, editors. The Oxford Handbook of the Science of Science Communication. Oxford University Press; 2017.

Science Friday. Science Journalism Is Shrinking–Along With Public Trust In Science. 2024 . Available from: https://www.sciencefriday.com/segments/science-journalism-trust-in-science

Young DG, Rasheed H, Bleakley A, Langbaum JB. The politics of mask-wearing: Political preferences, reactance, and conflict aversion during COVID. Soc Sci Med 1982. 2022 Apr;298:114836.

[6] Some scientists produce information that is not to be trusted: Sources

Bagenal, J. et al. (2024). To keep health as a unifying force, we must put resources into tackling health misinformation and disinformation. The Lancet, Volume 404, Issue 10465, 1792 - 1794, https://www.thelancet.com/action/showPdf?pii=S0140-6736%2824%2902245-1

Bowra, A 2024 Interconnected influence: Unraveling Purdue Pharmaceutical's role in the global response to the opioid crisis.Journal of Drug Policy. 2024. https://doi.org/10.1016/j.drugpo.2024.104604

Brownell KD, Warner KE. The Perils of Ignoring History: Big Tobacco Played Dirty and Millions Died. How Similar Is Big Food? Milbank Q. 2009 Mar;87(1):259–94.

Burt J, Street C, Naveed J, McGrail KM. Public Trust, Literacy and Health Data Foundations in Canada: A Foundational Paper. Health Data Research Network Canada; 2025.

Christensen Hughes J, Eaton SE. Academic Misconduct in Higher Education: Beyond Student Cheating. In: Eaton SE, Christensen Hughes J, editors. Academic Integrity in Canada: An Enduring and Essential Challenge. Cham: Springer International Publishing; 2022. p. 81–102.

Collin J, Plotnikova E, Hill S. One unhealthy commodities industry? Understanding links across tobacco, alcohol and ultra-processed food manufacturers and their implications for tobacco control and the SDGS. Tob Induc Dis. 2018 Mar 1;16(1):A80.;

Council of Canadian Academies (2010). Honesty, Accountability and Trust: Fostering Research Integrity In Canada. Report of the Expert Panel on Research Integrity. https://cca-reports.ca/wp-content/uploads/2022/11/Research-Integrity-Full-Report-EN.pdf

Evans JA. Industry collaboration, scientific sharing, and the dissemination of knowledge. Soc Stud Sci. 2010;40(5):757–91.

Gray, G. (undated) Why did-thalidomide's makers ignore warnings about their drug? The Conversation. https://theconversation.com/why-did-thalidomides-makers-ignore-warnings-about-their-drug-47092

Grudniewicz A., et al. (2019) 'Predatory Journals: No Definition, No Defence', Nature, 576: 210–2.

HAL. 2009. The State of Research Integrity and Misconduct Policies in Canada. https://www.nserc-crsng.gc.ca/_doc/NSERC-CRSNG/HAL_Report_e.pdf

Hawkins BR, McCambridge J. Partners or Opponents? Alcohol Industry Strategy and the 2016 Revision of the U.K. Low-Risk Drinking Guidelines. J Stud Alcohol Drugs. 2021 Jan 1;82(1):84–92.

International Science Council (2023). The Case for Reform of Scientific Publishing. DOI: 10.24948/2023.14, https://council.science/publications/reform-of-scientific-publishing/ Publisher: International Science Council

Isai V. Dozens of Canadian researchers have faced discipline for integrity breaches. The Globe and Mail. 2019 Aug 20. Available from: https://www.theglobeandmail.com/canada/article-dozens-of-canadian-researchers-have-faced-discipline-for-integrity/

Ishmael-Perkins, N. et al. 2023., The Contextualization Deficit: Reframing Trust in Science for Multilateral Policy'. The Centre for Science Futures, Paris. DOI: 10.24948/2023.10 'https://futures.council.science/publications/trust-in-science.

Master Z, Resnik DB. Hype and public trust in science. Sci Eng Ethics. 2013 Jun;19(2):321–35.

Oreskes N, Conway EM. Defeating the merchants of doubt. Nature. 2010 Jun 10;465(7299):686–7

Oviedo-García MÁ. Journal citation reports and the definition of a predatory journal: The case of the Multidisciplinary Digital Publishing Institute (MDPI). Res Eval. 2021 Jul 1;30(3):405–419a.

Rampton S, Stauber J. Trust Us, We're Experts. Penguin Random House; 2002

Retraction Watch Leaderboard. https://retractionwatch.com/the-retraction-watch-leaderboard/

Retraction Watch. 2025. Papers and peer reviews with evidence of ChaptGPT writing. https://retractionwatch.com/papers-and-peer-reviews-with-evidence-of-chatgpt-writing/

Richardson RAK, Hong SS, Byrne JA, Stoeger T, Amaral LAN. The entities enabling scientific fraud at scale are large, resilient, and growing rapidly. Proc Natl Acad Sci U S A. 2025 Aug 12;122(32):e2420092122. doi: 10.1073/pnas.2420092122. Epub 2025 Aug 4. PMID: 40758886; PMCID: PMC12358853.

Sample, I. 2025. Quality of scientific papers questioned as academics 'overwhelmed' by the millions published, Widespread mockery of AI-generated rat with giant penis in one paper brings problem to public attention. https://www.theguardian.com/science/2025/jul/13/quality-of-scientific-papers-questioned-as-academics-overwhelmed-by-the-millions-published?CMP=Share_iOSApp_Othe

Schölin L, Petticrew M, Collin J, Knipe D, Barry R, Eddleston M, et al. Mapping commercial practices of the pesticide industry to shape science and policymaking: a scoping review. Health Promot Int. 2025 Feb 1;40(1):daaf001

Sobo EJ. Conspiracy theories in political-economic context: lessons from parents with vaccine and other pharmaceutical concerns. In: What To Do About Conspiracy Theories? Routledge; 2024.

Supreme Court of Canada. 2011. R. vc Imperial McDonald Tobacco Canada. Decision. https://decisions.scc-csc.ca/scc-csc/scc-csc/en/item/7957/index.do?q=r+v+imperial+tobacco

Sutherland, E. 2025. OECD. Collective Action to Facilitate the Use and Protection of Health Data. (Scaling fast while doing no harm) Canadian Health Data Summit.

Tanne J H. US reaches a final $7.4bn settlement on opioid oxycontin BMJ 2025; 389 :r1308 doi:10.1136/bmj.r1308;

Thacker PD. Stealing from the tobacco playbook, fossil fuel companies pour money into elite American universities. BMJ. 2022 Sep 14;378:o2095. doi: 10.1136/bmj.o2095. PMID: 36104039.

Willsher, K. 2021. French pharma firm found guilty over medical scandal in which up to 2,000 died. https://www.theguardian.com/world/2021/mar/29/french-pharma-firm-found-guilty-over-medical-scandal-in-which-up-to-2000-died

Yates, K. 2025. Citation cartels, ghost writing and fake peer-review: Fraud is causing a crisis in science — here's what we need to do to stop it. https://www.livescience.com/human-behavior/citation-cartels-ghost-writing-and-fake-peer-review-how-fraud-is-causing-a-crisis-in-science-and-what-we-can-do-about-it-opinion

[7] Some Canadians are more likely to mistrust science: Sources

Canadian Medical Association (CMA), Abacus Data. Canadian Medical Association 2025 health and media annual tracking survey. 2nd edition. Ottawa: The Association; 2025 Jan. https://digitallibrary.cma.ca/link/digitallibrary761

Canadian Medical Association Journal (2024). An apology for harms to Indigenous Peoples, https://www.cma.ca/our-focus/indigenous-health/apology-harms-indigenous-peoples

Cologna V, Mede NG, Berger S, Besley J, Brick C, Joubert M, et al. Trust in scientists and their role in society across 68 countries. Nat Hum Behav. 2025 Apr;9(4):713–30.

Cordeiro-Rodrigues, L., Cole, D.L. & Duan, D. The Instrumentalization of Public Health Issues for Propaganda by the Far-Right. Bioethical Inquiry 22, 321–326 (2025). https://doi.org/10.1007/s11673-024-10388-2

Edelman 2025 Edelman Trust Barometer, Canada Report 2025. Available from: https://www.edelman.ca/sites/g/files/aatuss376/files/2025-03/2025%20Edelman%20Trust%20Barometer_Canada%20Report_MASTER.pdf

Edelman. 2016. Edelman Trust Barometer Canada Report. 2016. https://www.edelman.com/trust/2016-trust-barometer

Edelman. 2021. 2021 Edelman Canadian Trust Barometer, https://www.edelman.ca/sites/g/files/aatuss376/files/trust-barometer/2021%20Canadian%20Edelman%20Trust%20Barometer_0.pdf

Ekos 2025. Historic Election Concludes amid Deepened Polarization. EKOS Politics. 2025.https://www.ekospolitics.com/index.php/2025/05/historic-election-concludes-amid-deepened-polarization

Funk, C, Tyson, A., , Kennedy, B, Johnson, C. 2020. Science and Scientists Held in High Esteem Across Global Publics. Pew Research Center. 2020. Available from: https://www.pewresearch.org/science/2020/09/29/science-and-scientists-held-in-high-esteem-across-global-publics/

Howell, E. & D. Brossard, (Mis)informed about what? What it means to be a science-literate citizen in a digital

world, Proc. Natl. Acad. Sci. U.S.A. 118 (15) e1912436117, https://doi.org/10.1073/pnas.1912436117 (2021)

Lee AY, Moore RC, Hancock JT. Designing misinformation interventions for all: Perspectives from AAPI, Black, Latino, and Native American community leaders on misinformation educational efforts. Harv Kennedy Sch Misinformation Rev. 2023 Feb 7.

Leger 2018. Canadian Science Attitudes Research. Ontario Science Centre. Available from: https://www.ontariosciencecentre.ca/media/3319/science_literacy_report2018.pdf

Lewandowsky S, Holford D, Schmid P. Public policy and conspiracies: The case of mandates. Curr Opin Psychol. 2022 Oct 1;47:101427.

Macdonald NE, Stanwick R, Lynk A. Canada's shameful history of nutrition research on residential school children: The need for strong medical ethics in Aboriginal health research. Paediatr Child Health. 2014 Feb;19(2):64. doi: 10.1093/pch/19.2.64. PMID: 24596474; PMCID: PMC3941673.

Murdoch B. How denial of airborne COVID transmission broke the world. Healthy Debate. 2025. Available from: https://healthydebate.ca/2025/03/topic/denial-airborne-covid-transmission/

Ophir Y, Jamieson KH. The effects of media narratives about failures and discoveries in science on beliefs about and support for science. Public Underst Sci Bristol Engl. 2021 Nov;30(8):1008–23.

Osborne, J., & Allchin, D. (2024). Science literacy in the twenty-first century: informed trust and the competent outsider. International Journal of Science Education, 1–22. https://doi.org/10.1080/09500693.2024.2331980;

Parkin A. Confidence in Leaders. Environics Institute. 2023. Available from: https://www.environicsinstitute.org/projects/project-details/confidence-in-leaders

Proof Strategies 2024. CanTrust Index Results Report 2024. Available from: https://proofagency.wpenginepowered.com/wp-content/uploads/2024/02/Proof-Strategies-CanTrust-Index-2024.pdf

Proof Strategies 2025. CanTrust Index 2025. Proof Strategies. 2025. Available from: https://proofagency.wpenginepowered.com/wp-content/uploads/2025/02/Proof-Strategies-CanTrust-Index-2025-FINAL.pdf

Public Health Agency of Canada, Science Strategy 2024–25 to 2029–30 Advancing health, well-being, and equity through science. https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/science-research-data/science-strategy-2024-2025-2029-2030/science-strategy-2024-2025-2029-2030.pdf

Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS 2 (2022) https://ethics.gc.ca/eng/policy-politique_tcps2-eptc2_2022.html)

Young DG, Rasheed H, Bleakley A, Langbaum JB. The politics of mask-wearing: Political preferences, reactance, and conflict aversion during COVID. Soc Sci Med 1982. 2022 Apr;298:114836.

[8]What must be done to future proof trust in health science? Sources

Bateman, J., Jackson, D. (2024). Countering Disinformation Effectively: An Evidence-Based Policy Guide, Carnegie Endowment for International Peace. https://carnegieendowment. org/research/2024/01/countering-disinformation-effectively-an-evidence-based-policy-guide?lang=en

Bureau du scientifique en chef du Québec, Fonds de recherche du Québec (2025). Naviguer dans les désordres de l'information: Un guide sur la mésinformation, la désinformation et la malinformation pour les titulaires de charge publique du Québec. https://www.scientifique-en-chef.gouv.qc.ca/app/uploads/2025/10/frq_guide_v11_web.pdf

Council of Canadian Academies. 2023. Fault Lines: Available from: https://cca-reports.ca/reports/the-socioeconomic-impacts-of-health-and-science-misinformation/

Global Measles Vaccination. CDC. 2025 [cited 2025 Jun 9]. Available from: https://www.cdc.gov/global-

measles-vaccination/data-research/global-measles-outbreaks/index.html

Hotez P. America and Europe's new normal: the return of vaccine-preventable diseases. Pediatr Res. 2019 Jun;85(7):912–4.

Increases in vaccine-preventable disease outbreaks threaten years of progress, warn WHO, UNICEF, Gavi. World Health Organization. 2025 [cited 2025 Jun 9]. Available from: https://www.who.int/news/item/24-04-2025-increases-in-vaccine-preventable-disease-outbreaks-threaten-years-of-progress--warn-who--unicef--gavi

Lubanga AF, Bwanali AN, Kangoma M, Matola Y, Moyo C, Kaonga B, et al. Addressing the re-emergence and resurgence of vaccine-preventable diseases in Africa: A health equity perspective. Hum Vaccines Immunother. 20(1):2375081.

Mann, M., Hotez, P., (2025). Science Under Siege: How to Fight the Five Most Powerful Forces that Threaten Our World. Public Affairs. ISBN10: 1541705491

Measles and Rubella Weekly Monitoring Report — Canada.ca. Public Health Agency of Canada. 2025 [cited 2025 Jun 9]. Available from: https://health-infobase.canada.ca/measles-rubella/

Measles. Government of Alberta. 2025 [cited 2025 Jun 9]. Available from: https://www.alberta.ca/measles

Office of the Chief Science Advisor (2021). Annual Report 2021-2022.https://science.gc.ca/site/science/sites/default/files/attachments/2023/CSA-Annual-Report_2021-22_web.pdf

Office of the Chief Science Advisor. The Status of Federal Scientific Integrity Policies – April 2024. https://science.gc.ca/site/science/en/office-chief-science-advisor/scientific-integrity/status-federal-scientific-integrity-policies-april-2024

Oliveira, T., Cardoso, N. d. O., Machado, W. d. L., Aragon Gonçalves, R., Quinan, R., Zorgi Salvador, E., Almeida, C. and Paes, A. (2024). Confronting misinformation related to health and the environment: a systematic review JCOM 23(01), V01. https://doi.org/10.22323/2.23010901

Policy Horizons, 2024. Disruptions on the Horizon, 2024. https://horizons.service.canada.ca/en/2024/disruptions/Disruptions_on_the_Horizon_2024_report.pdf

Public Health Agency of Canada, Science Strategy 2024–25 to 2029–30 Advancing health, well-being, and equity through science. https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/science-research-data/science-strategy-2024-2025-2029-2030/science-strategy-2024-2025-2029-2030.pdf

Public Health Agency of Canada. Nov. 10 2025. Statement from the Public Health Agency of Canada on Canada's Measles Elimination Status

Sun LH. Growing vaccine hesitancy fuels measles, chickenpox resurgence in U.S. Washington Post. 2022 Dec 27 [cited 2023 May 12]. Available from: https://www.washingtonpost.com/health/2022/12/26/vaccine-hesitancy-measles-chickenpox-polio-flu/

Tri-Agency, 2021. Responsible Conduct of Research.

Tri-Agency, 2022. Research Ethics Framework. Ethics.https://ethics.gc.ca/eng/tcps2-eptc2_2022_chapter1-chapitre1.html#