

Policy Brief No. 3

August 2021

Contributions of Bioethics to Public Health Surveillance from a One Health Perspective

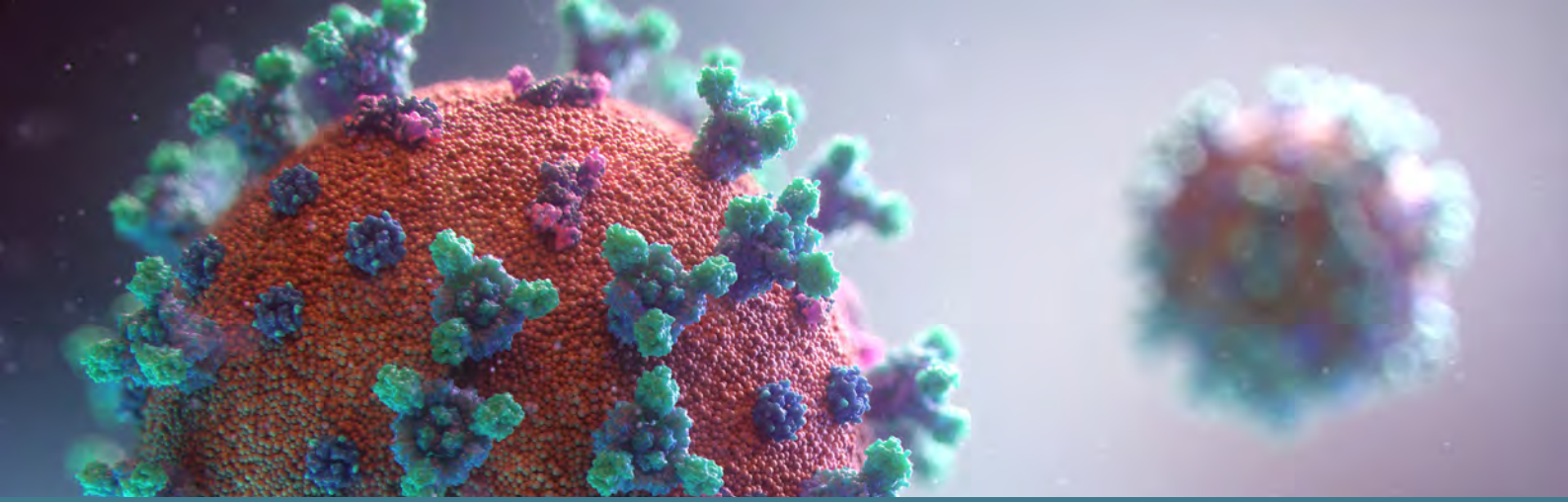
Implementing One Health and the contribution of interdisciplinary bioethics

The Public Health Agency of Canada was created in the wake of the SARS outbreak of 2002-2003 to establish a sustained federal infrastructure of public health expertise to respond to potential public health threats. The One Health approach to human, animal, and environmental health surveillance, which includes bioethics, has been only partially implemented and operationalised in Canada, despite being a critical paradigm shift in global health [1]. Like the One Health approach, bioethics has a structuring and framing role in many areas. It is best known in clinical and research ethics, but also informs public health and health policy, health and environment, and health management (decisions, processes, frameworks, criteria, and resource allocation). Bioethics values deliberative methods among experts, and transdisciplinary, communicative, and collaborative approaches.

Introducing bioethics into the design and implementation of a One Health approach and programmes makes it possible to apply ethical principles to the sequence of events and responses, such as those triggering a public health alert or emergency. Ethics contributes to the assessment of infectious risks anchored in comprehensive multi-systemic and transdisciplinary studies [2]. It enhances public health surveillance and, by extension, health security by identifying and discussing ethical issues that arise in public health, as well as at the interface of animal, human, and environmental health – and then enabling prioritisation of actions that take these issues into account. Interdisciplinary bioethics can be key to the success of knowledge co-construction, in support of decision-making [3].

The case of the COVID-19 pandemic

The COVID-19 pandemic is challenging infrastructure, priority information sources and signals as well as response strategies and timeliness. In the face of uncertainty, expert recommendations and the disciplines that produce them (mainly public health, modeling, and epidemiology), need reliable and credible sources of data and information that are continuously sought, collected, and validated. Responding to the urgent and evolving need for quality and validated information requires favourable underlying conditions, efficient processes, and the capacity to co-construct and integrate knowledge from the multiple sectors and disciplines that contribute to the One Health approach [8] [9]. A foundation of thoughtful ethical values, to which experts and public policymakers can refer, is needed to build decision-making capacity and infrastructure. During a health emergency, public health becomes the primary factor structuring public policy and action; public health recommendations take priority in order to control the crisis, manage uncertainty [10], reduce population risks and limit harmful effects as much as possible. Given the powerful role of public health in such crises, greater attention to ethics is essential in the assessment of infectious and pandemic risks and in the governance of surveillance systems across the fields of human, animal, and environmental health.



Recommendations

This policy brief proposes four recommendations in ethics, all centered around the One Health approach. We emphasize actionable applications to help manage and recover from pandemic crises such as the current COVID-19 crisis, and to prevent similar future situations.

- ✿ Identify gaps and use One Health's strategic contribution to animal, human, and environmental health surveillance: COVID-19 reminds us that the emergence of health problems links humans to other animal species [5]. Leverage the capabilities of animal surveillance data to improve the speed and performance of infectious risk detection as an essential tool in multi-system public health surveillance. An animal health information collection and sharing system must include domestic animals and wildlife [4].
- ✿ Strengthen channels of exchange and expertise: Develop interdisciplinary teams integrating bioethics and participating in risk assessment in a multi-systemic perspective (health systems and organisation of care, management of limited health resources) by promoting dynamic and fluid communication channels (for data, information, knowledge, algorithms), knowledge mobilisation and practical public health information.
- ✿ Maintain open and continuous dialogue on policy decisions: Actively involve One Health projects, programmes, and policies in networks of expertise and decision-making to help build new models and protocols for ethics and governance of epidemics/pandemics. To do this, co-construction of knowledge and coordinated decisions must be supported by best practices and innovative expertise [6] [7].
- ✿ Develop bioethics guidelines for One Health programmes: The practical implication of applying ethics is to engage experts and stakeholders in ways that foster collaborative action based on individual accountability, adoption of good practice based on excellence, consensus, shared vision, and common understanding [8].



Connecting decision-makers with stakeholders, with innovative, high impact, multi-systemic methods

How can this integration of bioethics with One Health approaches be achieved? Three cases emerging from contemporary methodologies illustrate this interconnection. Their technological, scientific, and bioethical contributions shape the conditions for co-construction, deliberation, and innovation.

Case 1: The contribution of bioethics to technological innovation at the intersection of disciplines

Operationalising the One Health approach is a challenge, but also an opportunity for technological innovation, including Artificial Intelligence (AI). Infectious and pandemic risk assessment requires a diversification of data collection methods and sources, including open sources and social media [11]. These sources are also useful for assessing the acceptability of public health measures and the degree of public participation. Bioethics participates in the elaboration of norms, arbitration of complex debates and sharing of knowledge through processes of knowledge elaboration where these quantitative methodologies and a comprehensive vision of the issues are interconnected. Bioethics advocates methodologies adapted to contexts, unprecedented situations of epidemics, pandemics and endemic diseases. It works to put them in direct relation with decision-making processes, considering their applicability and social acceptability in each society.

Case 2: Transdisciplinary contribution of bioethics to One Health in the context of epidemics, pandemics, and endemic infectious diseases

In order to carry out a proper assessment of infectious risks, the lessons learned from the COVID-19 pandemic point to the need for rapid strategies and actions based on the best credible information, the rapid co-construction of reliable evidence validated by the best available expertise [12]. Without such a robust risk assessment, it is difficult for political authorities to align and react adequately in time. An accelerated transdisciplinary approach, integrating targeted academic and technical contributions, is necessary in the fight against infectious risks. Bioethics participates in this elaboration of recommendations, prioritisation of information, evaluation and re-evaluation of risks with a view to agile responses and plans. Bioethics brings to the table its multi-systemic understanding, including the democratisation of One Health and the values of humanism, equity, respect, and commitment.

Case 3: Coordinated and collaborative deliberation applied to the ethical issues of antimicrobial resistance

Members of the Global One Health Network have initiated a process of co-construction in ethics and governance aimed at promoting an acceptable and collaborative monitoring system for antibiotic use in animal health in Quebec (Canada). Stakeholders expressed some reluctance due to the complex regulatory requirements for antibiotics in medical and agricultural practice – but they are also motivated by the urgency recognised by stakeholders to act promptly to improve animal health and implement good practices in the use of antibiotics to prevent the risk of causing antimicrobial resistance [13].



Policy and practice implications

- ✿ Maintaining an interdisciplinary dialogue is crucial: it brings a global vision, enables anticipation of gaps and contributes to the prioritisation of information. Bioethics provides leadership at the interface between technological innovation (real-time data), understanding of infectious risk management issues and appropriate multi-system responses.
- ✿ Integrating bioethics and One Health into the decision-making and governance streams would address, upstream, many of the issues that impede the implementation of best practices and intersectoral action plans in public health.
- ✿ Developing and consolidating good practices and ethical governance in animal, human, and environmental health surveillance requires a One Health approach that is multifaceted in scope: public policy, technological and methodological innovations, knowledge co-construction, and decision-making based on the best data and sources.

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