

# Antimicrobial Resistance (AMR)

<https://policybase.cma.ca/link/policy14079>

POLICY TYPE	Policy document
DATE	2019-03-02
TOPICS	Health care and patient safety Population health, health equity, public health

## Documents

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### Antimicrobial Resistance (AMR)

See also [Background to CMA Policy on Antimicrobial Resistance PD19-08](#)

#### Context

Antimicrobials (which include antibiotics) are a precious public resource and an essential tool for fighting infections in both humans and animals. Their importance to human medical, nutritional and economic security cannot be understated. Yet globally, antimicrobials are losing their effectiveness more quickly than new such drugs, treatments and therapies are being identified and introduced to market.<sup>1</sup> Consequently, this dynamic has eroded the human antimicrobial arsenal, placing the lives and futures of an unacceptable number of people at risk.

Antimicrobial resistance (AMR) occurs when microorganisms such as bacteria, viruses, fungi and parasites come into contact with antimicrobial drugs, such as antibiotics, antivirals, antifungals, antiparasitics and antipneumonia, and undergo changes. The drugs are rendered ineffective and cannot eradicate infections from the body.

AMR is an international challenge that threatens to reverse over a century of progress in public health, health care and human development attributable to antimicrobial use. Indeed, the effects of AMR are already being felt across Canada's health care system. Currently, Canada's dedicated investment in solutions to mitigate against increasing AMR in the AMR and antimicrobial stewardship (AMS) fields (both federally and provincially/territorially) can only be viewed as wholly inadequate to address the scope of the problem and the risks it poses for the health of Canadians.

Therefore, to: (1) promote awareness of AMR; (2) incentivize investment in AMR mitigation strategies; and (3) support the implementation of an effective suite of more clinically effective management, treatment practices and policies, the following target audience recommendations are offered.<sup>2</sup>

\* All the policy recommendations made in this document are not meant to be interpreted as clinical practice guidelines. They represent the expert best view on whether should promptly proceed to practice.  
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### BACKGROUND TO CMA POLICY

#### Antimicrobial Resistance

See also [CMA Policy Antimicrobial Resistance PD19-08](#)

#### OVERVIEW

The world is at the tipping point of a post-antibiotic era. "Worldwide, we are relying more heavily on antibiotics to ensure our medical, nutritional and economic security, while simultaneously causing the decline of their usefulness with overuse and ill advised use."<sup>1</sup> It is estimated that the world's use of antimicrobials increased by 65% between 2000 and 2015 — nearly as fast as in middle-income countries.<sup>2</sup>

Dr. Margaret Chan, the former head of the World Health Organization (WHO), described antimicrobial resistance (AMR) as a "disease-causing tsunami for public health. Other experts have characterized AMR as a looming "antibiotic apocalypse," warning that all countries "will face disaster consequences if the spread of AMR is not contained."<sup>3</sup> Others are now calling AMR the "climate change" of health care. According to the IJC review on AMR, an estimated 10 million people globally will die annually by 2050, and AMR will surpass cancer to become the leading cause of death.<sup>4</sup>

AMR occurs when "microorganisms (such as bacteria, fungi, viruses, and parasites) change when they are exposed to antimicrobial drugs (such as antibiotics, antifungals, antivirals, antiparasitics, and antipneumonia) ... As a result, the medicines become ineffective and infections persist in the body, increasing the risk of spread to others."<sup>5</sup> Microorganisms that develop antimicrobial resistance are sometimes referred to as "superbugs," "nightmare bacteria," as they have been dubbed, are bacterial strains that no conventional antimicrobial can effectively treat; their incidence is on the rise.<sup>6</sup>

AMR represents a unique challenge for the medical profession as it is estimated that as many as 50% of current antibiotic prescriptions are either inappropriate or unnecessary.<sup>7</sup> In addition, taking an antimicrobial involves potentially considerable exposure to side effects or risk. As there are more powerful, durable, and less-toxic forms of medical treatment. Critically, these include many medications for currently treatable bacterial infections, and many forms of surgery (including organ delivery), radiation therapy, chemotherapy and neonatal care.<sup>8</sup>

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# Concussion in Sport, Leisure, and Occupational Settings

<https://policybase.cma.ca/link/policy14023>

POLICY TYPE	Policy document
DATE	2019-03-02
REPLACES	Head injury and sport (2011)
TOPICS	Health care and patient safety Population health, health equity, public health

## Documents




# Organ and tissue donation and transplantation

<https://policybase.cma.ca/link/policy14126>

POLICY TYPE	Policy document
DATE	2019-12-07
REPLACES	Organ and tissue donation and transplantation (update 2015)
TOPICS	Ethics and medical professionalism Health care and patient safety

## Documents

 **CMA POLICY**

### ORGAN AND TISSUE DONATION AND TRANSPLANTATION


See also [Background to CMA Policy on Organ and Tissue Donation and Transplantation](#)

**RATIONALE**  
Organ and Tissue Donation and Transplantation (OTDT) is a rapidly changing area of medical science and practice. Organ and tissue transplantation represent significant benefits and life-saving interventions that require careful consideration by multiple stakeholders spanning medical disciplines. Technological and other biomedical advancements have made organ and tissue transplantation increasingly viable for treating related medical conditions. Changing social norms have also led to shifting perceptions of the acceptability of organ and tissue donation. Within this context, there is a need for renewed consideration of the ethical issues and principles guiding organ and tissue donation and transplantation in Canada.

The overarching principle that guides OTDT is public trust, which requires that the expressed intent either for organ donation will be honored and respected within the donation and medical systems, and that the best interests of the potential donor are always of paramount importance; policies and mechanisms that guide OTDT should aim to maintain and foster that public trust. The CMA acknowledges and respects the diverse viewpoints, backgrounds, and religious views of physicians and patients and therefore encourages physicians to confront challenges raised by OTDT in a way that is consistent with both standards of medical ethics and patients' values and beliefs.

**Scope**  
This policy identifies foundational principles to address the challenges surrounding deceased and living donation. In conjunction with applicable laws and regulations in Canada, the Declaration of Intent, the World Health Organization (WHO) Guiding Principles on Human Cells, Tissue and Organ Transplantation, and leading clinical practice, this policy aims to inform physicians and other interested parties on the guiding principles of OTDT in Canada. This policy is intended to address OTDT in adult populations; the challenges, considerations, legislation, and policy surrounding pediatric and neonatal OTDT are unique and deserve focused attention. Physicians should be aware of relevant legislation, regulatory requirements, and policies in the jurisdiction in which they practice. Physicians are encouraged to refer to the various

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 **BACKGROUND TO CMA POLICY**

### ORGAN AND TISSUE DONATION AND TRANSPLANTATION

See also [CMA Policy on Organ and Tissue Donation and Transplantation](#)

**Context**  
Organ donation wait lists in Canada continue to grow exponentially due to an aging population, climbing obesity rates, the increasing viability of organ transplantation, and improvements in the effectiveness of immunosuppressive medications.<sup>1</sup> It is projected that demand for organ transplants will increase 150% over the next two decades.<sup>2</sup> Presently, nearly 4500 Canadians remain on organ transplant waiting lists, some of whom will die before receiving a donation; 260 patients died while waiting for an organ transplant in 2016.<sup>3</sup> The majority of organ donations are made by deceased donors (81% in 2017)<sup>4</sup> and the majority of Canadians (91%) support organ and tissue donation, however, only 9% have registered their consent.<sup>5</sup>

In 2016, 2023 organ transplantations were performed in Canada using donations made by 758 deceased donors (548 NDD-donors and 174 DCD-donors) and 544 living donors. The rate of deceased organ donation in 2016 (20.9 donors per million people [DMP]) represents a 42% increase compared to 2007 (14.7 DMP).<sup>6</sup> However, this value still falls short of the 2017 goal set out in Canada's strategic plan to improve organ and tissue donation and transplantation (22 DMP), and also falls short of the performance of similar nations (e.g., the United States, 20.9 DMP).<sup>7</sup>

Compared to deceased donation, living donation offers better short-term and long-term health outcomes for recipients.<sup>8</sup> Living donors can be a whole kidney, a lobe of lung or liver, bone marrow, umbilical cord blood, and/or men cells through a directed (i.e., the organ is intended for a specific patient designated by the donor) or non-directed donation. Due to advancements in immunosuppressive technology, donors may be related or unrelated to the recipient,<sup>9</sup> and are matched based on appropriate compatibility tests. The rate of living donation (15.03 DMP in 2017) has decreased by 1% since 2006. Interestingly, certain provinces do not follow this trend; for example, the Kidney Paired Donation program, established in 2009, had its second most successful year in 2016 and has a total of 474 transplants facilitated to date.

<sup>1</sup> The original data were reported as Death-Noted (DN), also involving death based on neurological or brain-based criteria.  
<sup>2</sup> Data are after Canada's release of the Declaration of Death (DCD) determining death based on permanent and irreversible brain failure.  
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