

# ANTIMICROBIAL STEWARDSHIP IN CANADA

An Issue Brief Submitted to Parliament's  
Standing Committee on Health

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Date: June 5<sup>th</sup> 2017

*HealthCareCAN is the national voice of healthcare organizations and hospitals across Canada. We foster informed and continuous, results-oriented discovery and innovation across the continuum of healthcare. We act with others to enhance the health of the people of Canada; to build the capability for high quality care; and to help ensure value for money in publicly financed, healthcare programs.*

## Introduction

Antimicrobial resistance (AMR) poses a serious national and international public health threat. New forms of resistance are continuously emerging and spreading. The World Health Organization has warned that, without urgent, coordinated action, “a post-antibiotic era - in which common infections and minor injuries can kill - is a very real possibility for the 21st century.”

Promoting prudent antibiotic use in Canadian hospitals and healthcare settings (e.g., the right drug, at the right dose, frequency and duration) - in conjunction with effective infection prevention and control measures - is essential to addressing antibiotic resistance. Significant work remains to be done in healthcare institutional and clinical communities to increase awareness and improve antimicrobial stewardship (AMS) as part of an overarching action plan combating AMR.

## What are AMR and AMS

AMR refers to the process by which microbes (bacteria, viruses, fungi and protists) can become resistant to treatment over time. When therapies are used to kill these pathogens, a small number are likely to survive in a given population because they possess some adaptation that made them resistant to the drug used. These adaptations are passed on both within species and sometimes between them. The problem is especially acute for bacterial infections. Due to inappropriate use of antibiotics, bacteria are mutating into “superbugs”, which are becoming more and more difficult to kill. The Public Health Agency of Canada (PHAC) estimates that 18,000 Canadians in hospitals contract drug-resistant infections each year.<sup>i</sup> Many of these patients, whose health has already been compromised, suffer and die unnecessarily.

Unless solutions are found, routine medical treatments may soon become too risky to undertake due to the risk of infection. Many experts warn that mankind stands poised on the precipice of an “antibiotic apocalypse” in which medicine is “plunged back into the dark ages.” All forms of surgery, chemotherapy, radiation therapy, burn therapy, dialysis and a host of other common treatment options may soon be off the table. According to the UK’s Review on Antimicrobial Resistance, ten million people around the world will die annually from infections by 2050 because we have lost the capacity to treat them, surpassing cancer mortality by a wide margin.<sup>ii</sup>

The United Kingdom’s National Institute for Health and Care Excellence (NICE) defines AMS as “an organizational or healthcare-system-wide approach to promoting and monitoring judicious use of antimicrobials to preserve their future effectiveness”.<sup>iii</sup> AMR is a consequence of the overuse of antimicrobials. AMS involves deploying interventions that result in appropriate and prudent use of these precious resources.

## A National Policy Context for AMS

Every year, over 23 million antimicrobial prescriptions are written for human consumption in Canada<sup>iv</sup>, 30-50% of which are estimated to be unnecessary.<sup>v</sup> Meanwhile, the cost of human antimicrobial prescribing in Canada exceeds \$780 million with community dispensing accounting for 87% and hospital purchases accounting for 13% of this amount.<sup>vi</sup> A 15% reduction in prescribing in British Columbia resulted in \$50M per year in cost-savings for society, \$25 million of which was saved by government.<sup>vii</sup> There is a public health imperative to increase *appropriate* prescribing and not merely to reduce prescribing. But it is also evident that encouraging appropriate prescribing through robust AMS would create significant savings for the public treasury.

Canada was once regarded as a global leader in recognizing and responding to the threat of AMR. As early as 2004, a comprehensive [National Action Plan to Combat Antimicrobial Resistance](#) was in place for Canada, to be coordinated by the Canadian Committee for Antimicrobial Resistance (CCAR). Unfortunately, efforts to achieve the goals set out in that plan stalled for want of resources and political will. In its [2009 pan-Canadian consultation report](#), CCAR highlighted inadequate staffing and funding as major obstacles to achieving its mandate. CCAR lost its funding in 2009 and was disbanded.

In 2011, the Public Health Agency of Canada identified AMR as one of the most significant public health risks facing Canadians. In the years that followed, PHAC went on to release a [Federal Framework for Action \(2014\)](#) and [Federal Action Plan \(2015\)](#) for antimicrobial resistance and use. These reports identify three key dimensions of an effective response to the threat of AMR.

- Surveillance: Detecting and monitoring trends and threats in order to inform strategies to reduce the risks and impacts of antimicrobial resistance.
- Stewardship: Conserving the effectiveness of existing treatments through infection prevention and control guidelines, education and awareness, regulations, and oversight.
- Innovation: Creating new solutions to counteract loss in antimicrobial effectiveness through research and development.

In later national discussions, Infection Prevention and Control was added as a pillar separate from Stewardship in an acknowledgement that processes for preventing infection differ significantly from those that prevent the development of AMR.

Shortly following the publication of the *Federal Action Plan*, [Canada's Auditor General reported](#) that PHAC and Health Canada had “not fulfilled key responsibilities to mitigate the public health risks posed by the emergence and spread of antimicrobial resistance in Canada.” In particular, the report noted that “[PHAC] has discussed areas of collaboration with the provinces and territories, but has not succeeded in achieving consensus on the scope of a pan-Canadian strategy to address antimicrobial resistance...” and that “Health Canada has not taken some important steps to promote the prudent use of antimicrobials in food animals to protect the effectiveness of antimicrobials important to human medicine”.

Despite these setbacks at the federal level, there has been some significant progress in advancing AMS at national, provincial, regional and institutional levels. A notable example has been Accreditation Canada's adoption of a Required Organizational Practice (ROP) on AMS for accrediting healthcare organizations in 2012. Various education programs and campaigns aimed at improving professional practice and curbing consumer demand have been conducted by diverse groups within the system. Healthcare organizations have also responded by implementing high quality formal antimicrobial stewardship programs, with leaders including the

Sinai Health System–University Health Network and Alberta Health Services. On balance, however, these advances have been piecemeal. The missing ingredients towards making sustained gains in AMS have been national coordination and financial resources.

## The Antimicrobial Stewardship Action Roundtable and AMS Canada

In June 2016, HealthCareCAN and the National Collaborating Centre for Infectious Diseases (NCCID) supported by PHAC assembled '50 Champions of Change' – experts, key influencers, and stakeholders in AMS – in Toronto, Ontario at the Antimicrobial Stewardship Action Roundtable. The goal of the Roundtable was to discuss the key elements of a national action plan on AMS. These discussions resulted in a report entitled [\*Putting the Pieces Together: a National Action Plan on Antimicrobial Stewardship\*](#), which called for ten key actions necessary to significantly advance AMS in Canada.

### Key Actions in the National Action Plan on Antimicrobial Stewardship

- Action 1: Convene and Fund a National Network to Coordinate Stewardship: “AMS Canada”
- Action 2: Nominate Executive Leads on AMS at the Federal/Provincial/Territorial Levels for Strategic Planning and Implementation
- Action 3: Enhance Accreditation for AMS
- Action 4: Support and Scale Up Core Operations in Hospital-Based AMS
- Action 5: Enhance Awareness of AMR and AMS among Prescribers and the Public
- Action 6: Establish an AMS Research and Development Fund
- Action 7: Develop and Support Core Datasets in AMU Surveillance
- Action 8: Incent Community Prescribers Using Audit and Feedback Mechanisms
- Action 9: Develop National Guidelines for Antimicrobial Prescribing and a Mechanism to Promote Adoption
- Action 10: Develop a Network of Centres of Excellence in Knowledge Mobilization (NCE-KM) for AMS

The first item of the Action Plan calls for the creation of a “...national network of key stakeholders in antimicrobial stewardship” to provide strategic advice and co-ordinate AMS projects that fall within the jurisdictions or competencies of its members. In October 2016, a group comprised of stakeholders, advocates, practitioners, researchers, government institutes and agencies, and key influencers was convened to play this role under the name ‘AMS Canada’. A list of AMS Canada Steering Committee members is included in an appendix to this Issue Brief.

## Recent Federal/Provincial/Territorial Government Activities in AMR

The federal, provincial, and territorial governments have initiated a process to collaborate in order to take robust national action on AMR. That process includes a steering committee composed of F/P/T senior civil servants, as well as four task groups which report to and advise it (covering infection prevention and control, innovation, surveillance, and stewardship). **It is anticipated that it may take as long as 2 years to develop an Action Plan. Indeed, a Pan-Canadian Framework for Action was expected to be unveiled at the recent World Health Assembly meetings in May, but this deadline has been missed, pushing progress further down the line.**

Given these timelines, the AMS Canada Steering Committee is better positioned to take action in the near term. The work of AMS Canada has informed the deliberations of the F/P/T Task Group on antimicrobial stewardship and the policy outputs from the F/P/T Steering Committee. One member of the AMS Canada Steering Committee was selected as a member of the F/P/T Task Group on stewardship to provide linkage between the two efforts. That being said, AMS Canada operates adjacent to, but separate from the F/P/T process.

## **HealthCareCAN Recommendations to the Standing Committee on Health**

### **1. Break the Federal/Provincial/Territorial Logjam**

AMR has been described by former World Health Organization Director General Dr. Margaret Chan as a “slow moving disaster”, and is viewed globally as one of the most pressing and serious threats to human health. In 2015, the Auditor General identified glaring gaps in PHAC’s work on AMR. As part of the review, the Auditor General recommended that PHAC “in cooperation with its federal partners, provinces, territories and other stakeholders identify priority actions, clarify roles and responsibilities, and establish clear and realistic deadlines for the development of a pan-Canadian strategy to address antimicrobial resistance”. Two years later, the process has yet to produce a pan-Canadian Action Plan or indeed even a finalized Framework for Action.

HealthCareCAN recognizes and greatly appreciates PHAC’s contribution to the development of the AMS Canada Network and other significant activities in AMR. At the same time, we recognize that a number of factors, including jurisdictional barriers, have contributed to the slow pace of the government on this (and other) files. Superbugs do not respect F/P/T boundaries. We look forward to the appointment of the new Chief Public Health Officer as an authoritative voice speaking directly to the Canadian public on this and other issues.

**In addition, we ask that the Health Committee recommend that the government appoint a National Advisor on AMR to raise the priority of the national AMR response, and assist PHAC to combat the lassitude we have seen at the F/P/T level.**

### **2. A Line Item in Budget 2018 Addressing AMR and Supporting AMS Canada**

Members of the AMS Canada Network – over 50 champions from across the country – put their time and effort into developing an Action Plan with the expectation that AMS Canada would have the government’s support. At its inaugural meeting in October 2016, AMS Canada committed to undertake three key “table-setting” exercises in AMS. These activities are intended as facilitators for key commitments under the Action Plan; they are designed to help ‘set the table’ for progress going forward. These “table-setting” activities include:

1. Developing an evaluation protocol to assess progress in national AMS efforts;
2. Modeling strategies for educating the public on AMR and AMS; and,
3. Developing and promoting national guidelines on antimicrobial use, starting by undertaking a feasibility study for a national audit of prescribers in Canadian hospitals, following Australia’s example.

Yet despite our planning and project development efforts, we have recently been advised that modest funding that PHAC initially allocated to support the AMS Canada network and its activities has been deferred indefinitely; the resources devoted to other priorities. We view this decision as short-sighted. The longer it takes to deliver on AMS Canada’s commitments, the slower the progress on AMR and AMS will be when the F/P/T process reaches its conclusion. Without resources, there is a risk that the AMS Canada network will lose much-needed momentum. Indeed, there is a risk the network may dissolve, like CCAR before it, nearly a decade ago.

We are disappointed by these events, but we also understand why things have turned out this way. Ultimately the resources promised by PHAC disappeared because PHAC does not have dedicated resources to devote to the AMR response. Instead, PHAC has been forced to cobble together resources from existing budgets. Yet even these have failed to materialize because the resources were repurposed to meet changes in political winds. **We therefore ask that the Health Committee recommend that the government carve out a line item in Budget 2018 for PHAC to give AMR/AMS projects the attention and resources they deserve, in collaboration with the AMS Canada Network.**

### **3. Prioritize AMR during Canada's Presidency of the G7**

AMR is not a problem that any nation can address alone; it is, as the former Director General of the World Health Organization put it "...a fundamental threat to human health, development, and security." Canada will host the presidency of the G7 in 2018. This is a unique opportunity for Canada to leverage its position to bring global attention to the challenges posed by AMR. These efforts would build on momentum generated at last year's high-level UN Meeting and at the recent G20 health ministers' meeting, both of which emphasized the importance of a global response on AMR. In 2010, Canada used its presidency of the G7 (at that time it was the G8) to champion maternal, newborn and child health, leading to a significant infusion of dollars that continues to this day. In 2018, Canada can promote international cooperation towards solving what may be the greatest single health crisis of our time. **We therefore ask that the Health Committee recommend that the government use Canada's G7 Presidency to leverage investments in a global initiative to promote the judicious use of antimicrobials, ensuring that those in need get the right therapy, at the right dose, at the right time.**

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<sup>i</sup> See: [Antimicrobial Resistance and Use in Canada: A Federal Framework for Action](#)

<sup>ii</sup> See: [Tackling Drug-Resistant Infections Globally: Final Report and Recommendations](#)

<sup>iii</sup> See NICE guidance on antimicrobial stewardship here: <https://www.nice.org.uk/guidance/ng15>

<sup>iv</sup> See the Canadian Antimicrobial Resistance Surveillance System Report for 2016, available at: <http://healthycanadians.gc.ca/publications/drugs-products-medicaments-produits/antibiotic-resistance-antibiotique/alt/pub-eng.pdf>

<sup>v</sup> Based on estimates from the Centres for Disease Control and Prevention in the United States, where prescribing trends are considered to be similar.

<sup>vi</sup> See the Canadian Antimicrobial Resistance Surveillance System Report for 2016, available at: <http://healthycanadians.gc.ca/publications/drugs-products-medicaments-produits/antibiotic-resistance-antibiotique/alt/pub-eng.pdf>

<sup>vii</sup> Based on a recent analysis of BC's PharmaNet database currently being written up by the British Columbia Centre for Disease Control. Contact Dr. David Patrick at the UBC School of Population and Public Health for details.

## Appendix – AMS Canada Transitional Steering Committee Members

*Putting the Pieces Together: a National Action Plan for Antimicrobial Stewardship* calls for the creation of a “...national network of key stakeholders in antimicrobial stewardship” to provide strategic advice and coordinate AMS projects that fall within the jurisdictions or competencies of its members. In October 2016, a group comprised of stakeholders, advocates, practitioners, researchers, government institutes and agencies, and key influencers was convened to play this role under the name ‘AMS Canada’. A list of AMS Canada’s Transitional Steering Committee member organizations and representatives is included below.

Organization	Representative
HealthCareCAN	Mr. Bill Tholl, President & CEO
National Collaborating Centre for Infectious Diseases	Ms. Margaret Haworth-Brockman, Senior Program Manager
Public Health Agency of Canada	Ms. Jacqueline Arthur, Manager; Strategic Issues
Sinai Health System – University Health Network	Dr. Andrew Morris, Director; Antimicrobial Stewardship Program  and  Ms. Yoshiko Nakamachi, Program Manager; Antimicrobial Stewardship Program
Canadian Institute for Health Information	Ms. Kira Leeb, Director; Health System Performance
Canadian Patient Safety Institute	Ms. Sandi Kossey, Senior Director
Accreditation Canada	Ms. Janice McVeety, Program Manager; Research, Development, and Engineering
Canadian Institutes of Health Research	Dr. Marc Ouellette, Scientific Director; Institute for Infection and Immunity
Canadian Nurses Association	Ms. Karey Shuhendler, Policy Advisor; Policy, Advocacy, and Strategy
University of Saskatchewan	Dr. Yvonne Shevchuk, Professor of Pharmacy and Associate Dean
Patients for Patient Safety Canada	Ms. Kim Neudorf, Patient Representative
Do Bugs Need Drugs? / University of British Columbia	Dr. David Patrick, Epidemiology Lead (DBND) and Professor and Director, School of Population and Public Health (UBC)
College of Family Physicians of Canada	Dr. Roy Wyman, Director; Certificates of Added Competence
Canadian Dental Association	Dr. Benoit Soucy, Director; Clinical and Scientific Affairs
Canadian Veterinary Medical Association	Mr. Jost am Rhyn, Chief Executive Officer
Canadian Pharmacists Association	Ms. Shelita Dattani, Associate Director; Professional Development
Association of Medical Microbiology and Infectious Disease Canada	Dr. Greg German, Medical Microbiologist