

BRIEF



**CANADIAN
NURSES
ASSOCIATION®**

ANTIMICROBIAL RESISTANCE IN CANADA

Brief for the Standing Committee on Health

June 2017

CNA is the national professional voice of over 139,000 registered nurses and nurse practitioners across Canada. CNA advances the practice and profession of nursing to improve health outcomes and strengthen Canada's publicly funded, not-for-profit health system.

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Background

The Canadian Nurses Association (CNA) recognizes that antimicrobial resistance (AMR) is a major threat to people's health in Canada, a threat projected to worsen over time if actions are not taken. The director-general of the World Health Organization (WHO) has characterized AMR as a "slow-motion disaster" and one of the most serious dangers to human health and safety.¹ CNA acknowledges the government's responses to this threat through *Antimicrobial Resistance and Use in Canada: A Federal Framework for Action*,² *Federal Action Plan on Antimicrobial Resistance and Use in Canada: Building on the Federal Framework for Action*³ and *Tackling Antimicrobial Resistance and Antimicrobial Use: A Pan-Canadian Framework for Action*.⁴ In tandem with this work, national and provincial organizations have developed successful programs that the federal government can also leverage. This brief outlines recommendations to support the advancement of the federal action plan on AMR and highlights how capitalizing on the expertise of nurses,⁵ Canada's largest group of health-care providers, will be essential for advancing this critical federal agenda.

With more than 400,000 regulated nurses in Canada,⁶ working in every health-care setting, nurses have the capacity to dramatically influence the course of AMR across the country. Beyond Canada, a recent International Council of Nurses (ICN) position statement notes the importance of nurses for preserving the strength of antimicrobial medicines:

Nurses play a central role in patient care and interdisciplinary communication and, as such, are in a key position to contribute to reducing AMR and critical for the function of antimicrobial stewardship programmes (ASP). Nurses assess and diagnose infections; administer and may prescribe antimicrobials; monitor treatment outcomes and report side effects; provide vaccination; and educate patients, their families and communities.⁷

Such interventions align well with a key strategic objective in WHO's Global Action Plan on AMR: "to reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures."⁸ In Canada nurses are well-positioned to minimize the

¹ (World Health Organization [WHO], 2016)

² (Public Health Agency of Canada [PHAC], 2014)

³ (PHAC, 2015)

⁴ Draft version 2 (2017).

⁵ Unless otherwise stated, *nurse* or *nursing* refers to any member of a regulated nursing category, i.e., a registered nurse, licensed/registered practical nurse, registered psychiatric nurse or nurse practitioner. This definition reflects the current situation in Canada whereby nurses are deployed in a variety of collaborative arrangements to provide care.

⁶ (Canadian Institute for Health Information [CIHI], 2017)

⁷ (ICN, 2017, p. 1)

⁸ (WHO, 2015, p. vii)



need for antimicrobials, by preventing infections through a variety of mechanisms, including immunization and infection prevention and control programs, and to prevent AMR through low-cost, high-impact stewardship activities.

Antimicrobial stewardship (AMS) is a practice that aims to minimize AMR by using antibiotics more sensibly; namely,

only when necessary and, if needed, by selecting the appropriate antibiotic at the right dose, frequency and duration to optimize outcomes while minimizing adverse effects. The principles of antimicrobial stewardship apply wherever antimicrobial agents are used including hospitals, long term care facilities, community medicine, agriculture and veterinary use, and in the home and community.⁹

Researchers have identified the utilization of multidisciplinary teams as an important strategy for meeting AMS goals, which require the broad engagement of health-care providers. Nurses are key to the success of ASPs, and their role in promoting the safety and quality of AMS has been well documented.¹⁰ At the same time, CNA recognizes that stewardship is just one part of a comprehensive strategy, which must include other nationally and internationally recognized areas for action — such as surveillance, infection prevention and control, treatment, research and innovation. Each of these areas should be considered within the context of “one health”; that is, the understanding that human, animal and environmental health are all intricately connected. As such, multiple sectors need to be involved in the development and implementation of an AMR action plan.

CNA is contributing to the national work on AMR in a number of ways:

- ▶ Participating in the AMS Canada steering committee and the Canadian roundtable on AMS to develop a multidisciplinary, multi-sectoral action plan.
- ▶ Contributing to the federal/provincial/territorial AMR stewardship task team to develop a pan-Canadian framework and action plan.
- ▶ Engaging with Choosing Wisely Canada to develop a list of nursing recommendations to reduce the use of tests, treatments and interventions that may lack benefit or cause harm.¹¹

Several Choosing Wisely list items advance the AMS agenda, including recommendations to reduce the inappropriate or unnecessary use of antimicrobials and to decrease interventions that may raise the risk of infection (thereby reducing the subsequent need for antimicrobials). CNA is also finalizing a specialty-based Choosing Wisely nursing list,

⁹ (Alberta Health Services, British Columbia Centre for Disease Control, 2017, para. 1)

¹⁰ (Joint Commission, 2017; Institute of Medicine, 2011; Choosing Wisely Canada [CWC] & Canadian Nurses Association [CNA], 2017)

¹¹ (CWC & CNA, 2017)



in partnership with Infection Prevention and Control Canada, which includes ways to reduce infections and inappropriate antimicrobial use (AMU) as well as laboratory tests that can lead to such use.

Despite the work of CNA and other partner organizations across Canada, additional efforts and investments by the federal government are required to address AMU and AMR. Of particular note is the need to emphasize an interprofessional approach to stewardship, which includes collaboration among nurses, physicians, pharmacists, patients and caregivers, as a cost-effective approach. With the focus on stewardship, CNA recommends the following strategies to address the issue of AMR in Canada:

1. That the federal government support all 10 recommendations on antimicrobial stewardship in *Putting the Pieces Together: A National Action Plan on Antimicrobial Stewardship*¹² by HealthCareCAN and the National Collaborating Centre for Infectious Diseases (NCCID).
2. That the federal government commit significant funding over the next five years (with an accountability framework)¹³ to scale up provincial and territorial ASPs and support the role of nurses in antimicrobial use, resistance and stewardship.

Recommendations

1. Support all 10 recommendations on antimicrobial stewardship in *Putting the Pieces Together: A National Action Plan on Antimicrobial Stewardship*.

The foundational work on Canada's commitment to develop a pan-Canadian AMR and AMU framework by 2017¹⁴ — notably, the June 2016 HealthCareCAN and NCCID AMS roundtable — was based on input from more than 50 stakeholders across interdisciplinary human and animal health professions in Canada, including leaders in AMR, AMU and AMS. Since CNA is a member of AMS Canada's steering committee, it supports all 10 of the recommendations set forth in this document, considered to be a compilation of research and expert consensus on actions required to advance the AMS agenda in Canada.

¹² (HealthCareCAN, National Collaborating Centre for Infectious Diseases, 2016)

¹³ Such an accountability framework could take several forms. CNA (2016) provides an example in its submission to the finance committee.

¹⁴ Which builds on the *Federal Action Plan on Antimicrobial Resistance and Use in Canada* (PHAC, 2015).



Recommendations for Action from *Putting the Pieces Together: A National Action Plan on Antimicrobial Stewardship*

1. Convene and fund a national network to coordinate stewardship: “AMS Canada”
 2. Nominate executive leads on AMS at the federal/provincial/territorial levels for strategic planning and implementation
 3. Enhance accreditation for AMS
 4. Support and scale up core operations in hospital-based AMS
 5. Enhance awareness of AMR and AMS among prescribers and the public
 6. Establish an AMS research and development fund
 7. Develop and support core datasets in AMU surveillance
 8. Incent community prescribers using audit and feedback mechanisms
 9. Develop national guidelines for antimicrobial prescribing and a mechanism to promote adoption
 10. Develop a network of centres of excellence in knowledge mobilization (NCE-KM) for AMS
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2. Commit significant funding over the next five years (with an accountability framework) to scale up provincial and territorial ASPs and support the role of nurses in antimicrobial use, resistance and stewardship.

Canada already has excellent antimicrobial stewardship programs in acute and community care settings, both of which are critical to AMS. National success stories are exemplified the Canadian AMS roundtable report (previously mentioned). A notable acute care example is the Mount Sinai Hospital-University Health Network ASP, where innovative approaches to improve prescribing practices has led to better patient outcomes and significant cost savings. Another new approach occurred in the first Canadian ASP program for the clinical nurse specialist role. During the 12-month pilot, which focused on the specific indicator of asymptomatic bacteriuria, the program reduced unnecessary urine culture requests by 27 per cent, at a cost saving of \$212,000 in one acute care hospital network and a 20 per cent reduction in the overtreatment of asymptomatic bacteriuria.^{15,16}

¹⁵ (Yoshiko Nakamachi, personal communication, June 8, 2017)

¹⁶ Treatment of asymptomatic bacteriuria, a common condition in which bacteria in the bladder are not causing illness, is considered an unnecessary overuse of antimicrobials.



In community care, an Alberta and British Columbia multi-module education program called Do Bugs Need Drugs emphasizes public education and working with community-based health-care professionals. During the program's twelve plus years in B.C., it has helped to decrease prescribing by 15 per cent, saving \$50 million annually — half of which was in governmental expenditures.¹⁷ The yearly cost of the program is estimated at 10-15¢ per capita¹⁸ (or \$3.6 to \$5.4 million in total).

To maximize the investment in AMS programs, CNA urges the federal government to make additional investments in the next two federal budgets to support the role of nurses in AMS. This support could be used to provide continuing AMS education for nurses as key members of the interprofessional health-care team.

Regulated nurses make up the largest group of health-care professionals in Canada. According to the Canadian Institute for Health Information,¹⁹ there are more than 400,000 regulated nurses across the country — over 100,000 licensed practical nurses, and nearly 300,000 registered nurses, including 5,000 nurse practitioners. Nurses are present in nearly every health setting and, as such, are well-positioned to contribute to AMS.

Historically, education and reform around antimicrobial use and stewardship have been targeted toward physicians and pharmacists.²⁰ Yet, there is a growing body of international evidence about the role of nurses in AMS and how taking advantage of this role can improve programs and health-care outcomes. In Canada, the emerging research on the role of nurses in AMS indicates that greater efforts to leverage nursing leadership and participation can improve the appropriate use of antimicrobials.²¹

With regard to these efforts, antimicrobial use and stewardship are well within the scope of nursing practice. NPs have broad prescriptive authority, and RN prescribing is legislated in some provinces (and in development in others). It must also be noted that AMS goes beyond the prescriber, and that one of the keys to success for its programs is adopting an interprofessional approach. In AMS programs using such an approach, nurses play a number of integral roles, including the following:

- ▶ Assessing and monitoring for signs and symptoms of infection, responses to antimicrobial treatment and antibiotic allergies²²

¹⁷ These figures are based on a recent analysis of B.C.'s PharmaNet database by the B.C. Centre for Disease Control. Contact Dr. David Patrick at UBC's school of population and public health for details.

¹⁸ (Patrick, 2017)

¹⁹ (CIHI, 2017)

²⁰ (Jefferies et al. in press)

²¹ Ibid.

²² (Edwards, Drumright, Kiernan, & Holmes, 2011)



- ▶ Contributing to clinical decision-making including recommendations around prescribing, de-prescribing and changing the route of administration (e.g., from intravenous to oral)
- ▶ Administering and overseeing medication administration and monitoring compliance with organizational guidelines and best practices for AMU, and educating patients and the public in these areas^{23,24}
- ▶ Informing decisions around laboratory testing
- ▶ Contributing to and leading organizational infection prevention and control programs, preventing and minimizing the need for AMU, and providing related education to patients and the public

In summary, nurses educate, advocate, use evidence-informed practices and are part of team-based care in which their recommendations help guide clinical decision-making. Nurses are integral to the success of AMS activities in Canada. They offer a cost-effective solution to ensuring optimal prescribing practices and to preventing and minimizing antimicrobial resistance and its associated complications.

Conclusion

Antimicrobial resistance is a national and international issue with local implications. Because immediate action is required, CNA encourages the standing committee on health to urge the federal government to adopt all ten expert recommendations in *Putting the Pieces Together: A National Action Plan on Antimicrobial Stewardship* as a key component of addressing antimicrobial use and resistance in Canada. The federal government can take additional concrete action by investing in established AMS programs with proven results to reduce inappropriate AMU and leveraging nurses' educational potential as antimicrobial stewards across all health settings in Canada.

²³ Ibid.

²⁴ (Olans, Olans, & DeMaria, 2016; Gillespie, Rodrigues, Wright, Williams, & Stewart, 2013; Landenheim, Rosembert, Hallam, & Micallef, 2013; Broom, Broom, Kirby, & Scambler, 2016; Manning, Pheiffer, & Larson, 2016)



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