

Antimicrobial resistance: An update from the Canadian Committee on Antibiotic Resistance

Canadian Committee on Antibiotic Resistance

The present article is one of a series prepared by the Canadian Committee on Antibiotic Resistance (CCAR). These articles are designed to update readers on current activities intended to limit the development and transmission of antibiotic resistance in Canada. Headquartered in Vancouver, British Columbia, the CCAR provides outreach to public and professional communities through activities focused on infection prevention and control, resistance surveillance and optimal antibiotic use.

NATIONAL ACTIVITIES

The CCAR completed the National Action Plan to Address Antibiotic Resistance in fall 2004. It has since been endorsed by many organizations across the country, and implementation of some of the 13 action items has begun, including activities in surveillance, optimal antibiotic use, infection control and research.

An International Report Card on Antibiotic Resistance is now being developed by the CCAR. This document will compare policies and procedures related to antibiotic resistance in Canada with those from selected other nations. Case studies describing levels of resistance will also be included. The document will be published on an annual basis, with the first Report Card due out by the end of 2005.

The Canadian External Quality Assessment Advisory Group on Antibiotic Resistance was formed by Health Canada in the late 1990s to address antimicrobial susceptibility testing and reporting. Over several years, this group created consensus documents that were used by laboratories across the country. Due to a lack of funding, the activities of the group were terminated in 2003. The CCAR has now provided funding to bring the group back together to determine whether their activities should be revived. To this end, discussions will begin in fall 2005 and a meeting of interested parties is likely to take place in spring 2006.

The Canadian Institutes of Health Research's Institute of Infection and Immunity partnered with the CCAR and several

other organizations to host the Novel Alternatives to Antibiotics workshop in Vancouver in March 2005. Several themes emerged among the many alternatives that were suggested: immune systems, microbial ecology, bioprospecting, phage therapy, novel target identification, physical systems/biomaterials and rapid diagnostics. Three of these themes were identified as being of high priority: immune systems, phage therapy and physical systems/biomaterials. One key result of the workshop was that the Institute of Infection and Immunity will issue a Request for Applications in December 2005 for \$1 million per year over five years in addition to contributions from other partners. Eligible research areas will include all of the themes and topics discussed at the workshop, but with emphasis on the three high-priority themes.

The Infection Prevention and Control Working Group of the CCAR will be developing best practices guidelines for hygiene and asepsis in long-term and community care settings. The first draft of the guideline will be completed in fall 2005 and distributed widely for comment.

The CCAR's Web site (1), which has recently been updated, provides a comprehensive and informative source of facts and discussion about antibiotic resistance. It is an extensive source of bilingual information for the public, as well as a source of more detailed reports and links to varied sources for physicians, veterinarians and other health care professionals. The Web site also includes current antibiotic use data supplied by IMS Health Canada as well as a series of PowerPoint (Microsoft Corporation, USA) slide presentations providing guidance and materials for speakers. Publications and new links are added on a regular basis. The Web site was completely redesigned and translated in March 2005.

The Canadian Integrated Program for Antimicrobial Resistance Surveillance has been under development for several years, beginning with the launch of program components in both the human and agrifood sectors. Information is being collected on antimicrobial resistance in enteric pathogens and

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commensal organisms from the agrifood sector (farm level, abattoir level and retail level), on antimicrobial resistance in enteric pathogens isolated from humans, and on antimicrobial use in humans and animals. The most recent data sets were released in February 2005 (2).

To better understand the epidemiology of methicillin-resistant *Staphylococcus aureus* (MRSA) in Canadian hospitals, surveillance has been conducted in sentinel hospitals since 1995 under the Canadian Nosocomial Infection Surveillance Program. This program is funded by the Public Health Agency of Canada. Results of the first nine years of the program were published in early 2005 (3).

The number of cases of community-acquired MRSA is on the rise in several locations across Canada (4,5). This has caused considerable concern among health care professionals and has generated two key activities. The first is a two-day workshop being led by Ontario's Ministry of Health and Long-Term Care. It will be held in Toronto, Ontario, on October 27 to 28, 2005, and will bring together experts from across the nation. The second is a Canadian Institutes of Health Research-funded study being conducted in northern Saskatchewan and being led by Dr Mike Mulvey of the Public Health Agency of Canada. With some funding from CCAR, Dr Mulvey will be bringing representatives from the northern regions of British Columbia, Alberta, Saskatchewan and Manitoba together to discuss community-acquired MRSA in the northern region.

The National Information Program on Antibiotics (NIPA) (6) was created in 1996 to help educate Canadians about the appropriate use of antibiotics. The coalition, whose annual operating costs are underwritten by an educational grant from Pfizer Canada, consists of eight medical, pharmacist and patient organizations. NIPA's communications campaign – Antibiotics: Use Them Wisely – is built around a twofold message: appropriate use (“prescribe antibiotics only when necessary”) and compliance (“take your antibiotics as directed”). Under this mandate, NIPA has five key objectives: raise awareness and understanding of the problem of antibiotic resistance; help Canadians understand the difference between viral and bacterial infections; encourage prudent antibiotic prescribing practices; promote compliance when antibiotics are prescribed; and help Canadians realize that we all have a role to play in helping fight this public health threat.

The recently established Expert Advisory Committee on Antimicrobial Resistance Risk Assessment held its first meeting in June 2005 in Ottawa, Ontario. The Committee was formed to advise Health Canada's Veterinary Drugs Directorate on assessment of the antimicrobial resistance risks attributable to new and existing antimicrobial agents and the proposed categorization of antimicrobial drugs. The categorization of antimicrobial drugs is part of the draft guidelines for assessing the microbiological safety of new veterinary antimicrobials that the Veterinary Drugs Directorate consulted on with stakeholders in 2004. The Committee is planning its next meeting to coincide with the national conference entitled “Agriculture's Role in Managing Antimicrobial Resistance” to be held in Toronto, Ontario, on October 23 to 26, 2005.

This event is a follow-up to a similar conference held in 1999. The purpose of this conference is to update participants on activities since 1999, present the current antimicrobial resistance and drug use situation in Canada, describe the link

to public health, food safety, the environment and animal welfare, and formulate where the road to prudent use of antimicrobials in Canadian agriculture and aquaculture will lead over the next five years. The event is sponsored by Agriculture and Agri-Food Canada, Canadian Animal Health Institute, Canadian Association of Swine Veterinarians, Canadian Federation of Agriculture, Canadian Food Inspection Agency, Canadian Veterinary Medical Association, Health Canada, Ontario Agri Business Association, Ontario Ministry of Agriculture, Food and Rural Affairs, Public Health Agency of Canada, University of Guelph, Université de Montréal and University of Prince Edward Island. Conference details are available on the Internet (7).

The Canadian Veterinary Medical Association has received \$127,000 from the Advancing Canadian Agriculture and Agri-Food program for its ongoing work on “Creation of Commodity Specific Antimicrobial Prudent Use and Practice Guidelines for Beef Cattle, Dairy Cattle, Swine, and Poultry”. The purpose of the project is to develop commodity-specific guidelines for beef cattle, dairy cattle, swine and poultry based on general antimicrobial prudent use principles so that these principles can be practically applied by veterinarians and producers.

REGIONAL ACTIVITIES

British Columbia medical microbiologists continue to collaborate on tracking trends in resistance patterns for select organisms. Recent analysis suggests an upward trend in the proportion of MRSA isolates. As a result of this analysis and the observations of community-acquired MRSA elsewhere, the province's antimicrobial resistance working group met in June 2005 to review related strategies.

Several British Columbia laboratories contribute to the Canadian Bacterial Surveillance Network. An independent study based out of Vancouver Hospital is providing long-term trend data in susceptibility of pneumococci and group A streptococci. There has been considerable assistance from private laboratories in piecing together trends for community-acquired organisms.

Through collaboration with the British Columbia College of Pharmacists, the British Columbia Centre for Disease Control continues to track trends in consumption of antimicrobials. While overall trends have been downward, there are some concerning increases in the consumption of second-generation macrolides and new fluoroquinolones. These trends are statistically associated with increases in class-specific resistance among several indicator organisms, including *Streptococcus pneumoniae* and *Neisseria gonorrhoeae*. Recently, linkage has been possible with associated billing codes. It would appear that a high proportion of prescriptions for second-generation macrolides are associated with codes for classes of upper respiratory infections where antibiotics are not generally considered to be indicated.

To address these issues, British Columbia PharmaCare has committed three years of funding to deploy the “Do Bugs Need Drugs?” program in British Columbia. This multifaceted health promotion and professional education program was developed by a team from Alberta's Capital Health Region and features components aimed at preschoolers, grade 2 students, the general public and health professionals. An update to the Bugs and Drugs Pocket Reference will be provided to doctors and pharmacists in the Fall of 2005.

British Columbia has also recently established a Provincial Infection Control Network, which brings together microbiologists, infection control practitioners, public health experts and others to address broad infection control issues that may extend outside of facilities to the communities they serve.

There continues to be collaboration between British Columbia's Ministry of Agriculture, Food and Fisheries laboratories and the British Columbia Centre for Disease Control laboratory in typing organisms of interest from both animal and human sources.

In March 2005, the Alberta-based "Do Bugs Need Drugs?" program undertook a study in conjunction with the CCAR, with funding provided by Health Canada. The study determined the interest in and need for a Chinese translation of the program's Parent Guide among the immigrant population in Vancouver, British Columbia, and Edmonton, Alberta. The

study found considerable barriers to understanding antibiotic resistance among immigrant populations and provided recommendations for improvement in communication materials.

ADDENDUM: The CCAR is a national organization involved in a variety of activities that help to limit antimicrobial resistance. Key areas of focus are surveillance, optimal antibiotic use, and infection prevention and control. The Board of Directors of CCAR include Dr John Conly (Alberta), Dr Edith Blondel-Hill (British Columbia), Ms Nora Boyd (Ontario), Ms Susan Fryters (Alberta), Dr Greg Horsman (Saskatchewan), Dr Jim Hutchinson (Newfoundland), Mr Hugo Trudel (Quebec) and Dr Karl Weiss (Quebec). Rick Walter is the Executive Director. For more information about CCAR, contact Rick Walter, Executive Director, 3806 West 33 Avenue, Vancouver, British Columbia V6N 2H6. Fax 604-263-7074 or e-mail ccar@shaw.ca, Web site www.ccar-ccra.org

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