

Antimicrobial Stewardship

Resistance to antimicrobial agents is a major public health issue, and antimicrobial stewardship* is critical to both delaying the emergence and reducing the impact of antimicrobial-resistant organisms. Antimicrobial resistance (antibiotic resistance) is a problem both in the community and in healthcare facilities, but it has the greatest impact in hospitals, where many seriously ill patients require life-saving antibiotic therapy. In hospitals, antibiotic-resistant organisms such as methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile* (*C. difficile*) are associated with increased rates of morbidity and mortality, to the point that the World Health Organization has identified antibiotic resistance as the third most important patient safety challenge.¹

The increasing recognition in Canada of the health burden associated with hospital-acquired infections, and the growing evidence that the use of antimicrobials in hospitals is a critical determinant of this burden, emphasize the urgency of developing and facilitating antimicrobial stewardship programs in this setting.² The joint best practice guidelines of the Infectious Diseases Society of America (IDSA) and the Society for Healthcare Epidemiology of America (SHEA) suggest that the appropriate use of antimicrobials is an essential aspect of patient safety, deserving of careful oversight and guidance.³ In addition to providing information about ways to improve patient safety and quality of care, the guidelines also highlight that antimicrobial stewardship programs are cost-effective and can be financially self-supporting in smaller community hospitals as well as in larger academic centres.² With these principles in mind, the Ontario Ministry of Health and Long-Term Care and the Ontario Agency for Health Protection and Promotion asked ISMP Canada to lead a project to help further develop and facilitate antimicrobial stewardship programs in hospitals. This bulletin shares information from the project to date.

*Antimicrobial stewardship is a comprehensive evidence-based program that utilizes a systematic approach of oversight and guidance to ensure the optimal use of antimicrobial agents. According to the IDSA and SHEA joint best practice guidelines, effective hospital-based antimicrobial stewardship programs facilitate appropriate drug selection, dosing, route of administration, and duration of therapy.³

Survey and Key Findings

A comprehensive survey of Ontario hospitals was conducted to assess the current state of hospital-based antimicrobial stewardship in the province. A web-based survey was developed and administered between September 12 and December 4, 2007; hard copies of the survey were also available upon request. The survey was sent to 3 professional groups in all Ontario hospitals (excluding specialty mental health facilities): directors of pharmacy, infectious diseases physicians, and medical directors of intensive care units. The survey asked questions about the professional background of the respondents and the characteristics of their hospitals; sought information about various antimicrobial stewardship activities and practices, including those recommended by the IDSA and the SHEA as best practices for institutions; and requested information about the hospitals' ability to measure and monitor antimicrobial use and antibiotic resistance.

Completed questionnaires were received from 114 (40%) of 286 professionals surveyed: 62 (62%) of 100 pharmacists, 15 (19%) of 81 infectious diseases physicians, and 37 (35%) of 105 medical directors of intensive care units. The respondents represented 80 (55%) of 146 hospital corporations in the province of Ontario: 12 (75%) of 16 academic health sciences centres, 25 (46%) of 54 large community hospitals, 37 (64%) of 58 small community hospitals, and 6 (33%) of 18 chronic care or rehabilitation hospitals.

The following are some highlights of the survey results:

- Almost all (99%) of the respondents stated that antimicrobial resistance was an issue of concern, and 68% considered it a problem in their respective hospitals.
- Respondents believed that the use of broad-spectrum antimicrobials at their hospitals could be reduced by 30% to 37% without reductions in the quality of patient care.
- Routine measurement of antimicrobial use seemed to be challenging. Fewer than 15% of hospitals reported obtaining usage data annually or more frequently. The most common barriers to regular reporting of data on antimicrobial use were lack of staff or lack of time (94% of all pharmacist respondents), lack of

knowledge about how to extract the data from the hospital system (48%), and difficulty in getting this type of data out of the hospital and pharmacy computer systems (40%).

The complete summary of survey results is available from: http://www.ismp-canada.org/abx/downloads/Ont_Abx_Stewardship_Survey_Summary.pdf.

Consensus Conference

A consensus conference was organized, with national and international experts invited to identify priority interventions and other considerations required for the successful implementation of antimicrobial stewardship programs in hospitals. More than 60 participants, including experts from The Netherlands, Austria, the United States, and Canada, participated in workshop sessions over 2 days.

The following points reflect the key conclusions reached during the consensus conference:

- Hospitals should be encouraged to implement antimicrobial stewardship programs rather than forming committees or instituting isolated interventions. Policy to guide antimicrobial stewardship programs would assist to strengthen and support these at the local, regional, and provincial levels.
- Education and training are important components for building antimicrobial stewardship capacity.
- Effective antimicrobial stewardship programs include as vital components the measurement of antimicrobial use and antimicrobial resistance.
- Timely access to high quality data enhances the effectiveness of stewardship programs, which requires effective information technology support at local levels.
- The development and use of an antimicrobial stewardship scorecard or self-assessment tool can assist in assessing overall progress in individual hospitals, regions, and in the province as a whole.

There was also agreement that antimicrobial use in the community has a direct influence on antimicrobial use in

hospitals, and that stewardship programs need to be designed to take this information into account. The full report of the consensus conference is available from: http://www.ismp-canada.org/abx/downloads/Ontario_Antimicrobial_Stewardship_Project_Consensus_Conf_Final_Report_2009.pdf.

A provincial conference for healthcare professionals jointly coordinated by ISMP Canada and the Ontario Hospital Association was held in fall 2009 to share the findings of the project. One of the conclusions arising from the consensus conference was that intervention projects to test and evaluate different components of stewardship programs would be valuable. As a result, ISMP Canada, the Ministry of Health and Long-Term Care, the Ontario Agency for Health Protection and Promotion, and the Ontario Hospital Association are discussing the optimal approach for continuing to support the development of antimicrobial stewardship programs in Ontario hospitals.

Additional project information and resources are available from ISMP Canada at: <http://www.ismp-canada.org/abx/>.

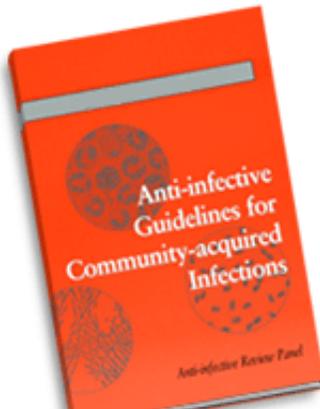
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