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“Assessing the Impact of Antibiotic Stewardship Program Elements on Antibiotic Use Across Acute-Care Hospitals: An Observational Study”

Bradley and co-investigators Julie HC Wu, Kevin Brown, Xuesong Wang, Valerie Leung, Charlie Tan, Gary Garber, and Nick Daneman received a Research Grant of \$13,989 in 2017.

Q. How did the concept/idea for your research project come about?

A. There is wide variability in overall antibiotic use between hospitals, even after accounting for characteristics associated with usage (hospital type, ICU admissions, etc.). At Public Health Ontario (PHO), we wanted to know if there are certain antimicrobial stewardship program (ASP) elements that are associated with less antibiotic use in hospitals.

Q. Please briefly describe your research project and what it revealed.

A. Our study looked at [survey data](#) describing components of each hospital's ASP as well as antibiotic purchasing data from 73 hospitals in Ontario. We compared risk-adjusted antibiotic use between facilities with and without certain antimicrobial stewardship elements. We found that hospitals with designated funding and resources for their ASP, those with prospective audit and feedback programs as well as those with intravenous to oral conversion policies, used less antibiotics than those without these components.

Q. How will the results of your research project be used?

A. The results of this research were presented at AMMI/CACMID annual conference and [published](#) in the journal Infection Control and Hospital Epidemiology. A [visual abstract](#) was also created to support dissemination. The results were used by PHO, and we hope will be used by other organizations, to identify potential high yield components or activities for antimicrobial stewardship programs.

Q. What impact will your research have on hospital pharmacy and patient care?

A. The findings of this research have implications on the field of hospital pharmacy as they support the concept that designated resources are necessary for pharmacists to have the greatest impact in stewardship activities. Prospective audit and feedback and IV to PO policies are both strategies that necessitate pharmacist involvement, so these findings reinforce how integral pharmacists are as members of the ASP team.

By selecting high-yield ASP activities, hospitals can be more effective and efficient at reducing antibiotic overuse. This can impact patients by reducing the harms of unnecessary treatment (e.g., antimicrobial resistance) and in many cases, ensure that patients are discharged from the hospital as early as possible.

As experts in both the benefits and harms of medication use, pharmacists have a unique lens through which they evaluate healthcare activities. Pharmacists are key players in and often lead antimicrobial stewardship programs at their institutions. Given the growing threat of antimicrobial resistance, ASPs have important implications on the health of the population. Hence the expanding body of antimicrobial stewardship literature, led or supported by pharmacists, will be essential to mitigating this public health threat.

Q. What role, if any, did the research grant play in supporting your professional career?

A. It is a challenge for many pharmacists to receive funding as the primary investigator on a project. This grant was instrumental in supporting my first province-wide research project and being recognized for this work.

Publication and Presentations: Langford BJ, Wu JHC, Brown KA, Wang X, Leung V, Tan C, Garber G, Daneman N. [Assessing the impact of antibiotic stewardship program elements on antibiotic use across acute-care hospitals: an observational study](#). *Infection Control & Hospital Epidemiology*. 2018;1-6.

Langford BJ, Wu JH, Brown KA, Wang X, Leung V, Tan C, Garber G, Daneman N. Assessing the impact of antibiotic stewardship program elements on antibiotic use across acute-care hospitals: an observational study. Oral Presentation at AMMI/CACMID – Vancouver, Canada. May 2018.

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