

Point Prevalence of Antibiotic Use at the Health Sciences Centre

Objective

To compare in-hospital use of antibiotics at the Health Sciences Centre (HSC) compared to Canadian hospitals.

Practice Points

Antimicrobial stewardship (AMS) is the quality improvement initiative which provides the appropriate antibiotic treatment to the appropriate patient for the appropriate duration.

Inappropriate antibiotic treatment is defined as:

1. Unnecessary antibiotic prescription for infections which do not require antibiotics, such as viral infections.
2. Unnecessarily broad-spectrum or duplicate antibiotic prescription for conditions which require narrow-spectrum antibiotics, such as when laboratory results provide specific bacterial susceptibility.
3. Unnecessarily long durations of antibiotic prescription for infections which could be cured with shorter durations.

The consequences of unnecessary antibiotics include:

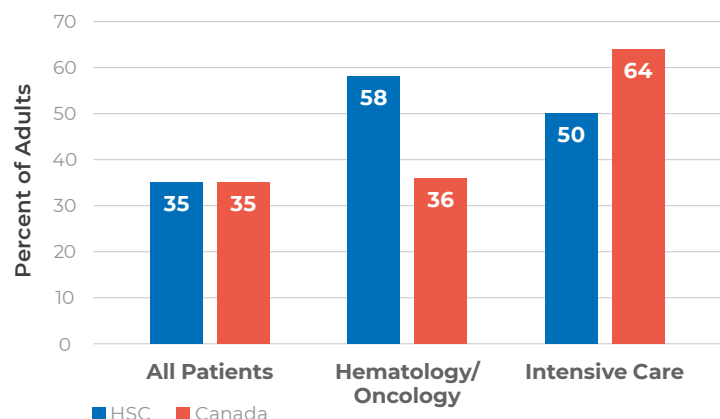
1. Selection of bacteria towards expression of antibiotic resistance genes, worsening treatment outcomes.
2. Destruction of healthy bacterial flora, causing Clostridium difficile diarrhea.
3. Wasted drug cost and prolonged hospital admission.
4. Patient expectation of the same treatment in future illnesses.

The methods of AMS include measurement of antimicrobial use rate, measurement of appropriateness of antimicrobial use, promotion of appropriate laboratory testing, and education and regulation of physicians towards appropriate use.

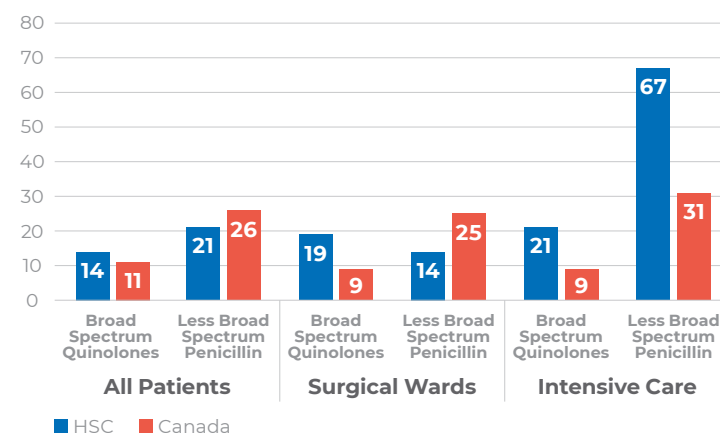
Methods: Global Point Prevalence Study (PI: Dr. P. Daley)

HSC participated in a study of 359 hospitals in 49 countries, which anonymously reviewed all adult inpatients receiving an antibiotic during a single day. The data were analyzed at the study center in Belgium.

Percentage of Adult Inpatients Receiving an Antibiotic During a Single Day



Type of Antibiotic Received by Adult Inpatients During a Single Day



- Among beta-lactam antibiotics, HSC prescribed more broad-spectrum beta-lactamase combination drugs (85.2%) compared to Canadian hospitals (72.0%).
- At the HSC, 84% of use was empiric (specific diagnosis not made) compared to 70% in Canadian hospitals.
- All 16 patients prescribed operative prophylaxis (antibiotics given during surgery to prevent infections) at HSC were given greater than one dose, when guidelines suggest a single dose is more appropriate.

Conclusion

1. There are clinically significant differences in the way antibiotics are used at HSC compared to other Canadian hospitals.