

AT A GLANCE

Opportunities in Public Health to Improve Antibiotic Use in Ontario

Published: November 2023

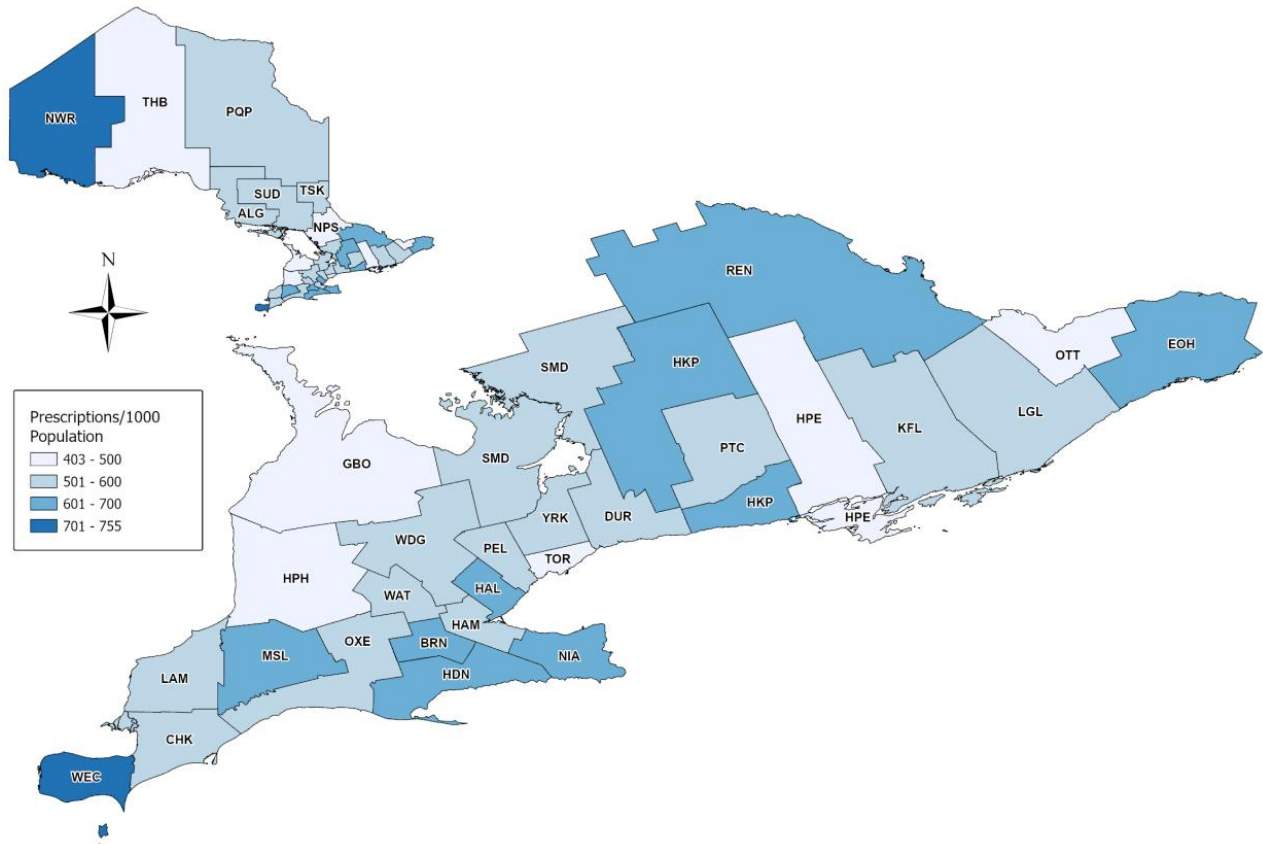
Antimicrobial Resistance is a Top Ten Threat to Public Health

Antimicrobial resistance (AMR) occurs when bacteria and other microbes develop ways to resist the effects of antimicrobials (such as antibiotics), making infections more difficult to treat. In addition to the impact on treatment of infections, AMR can also reduce the effectiveness of preventative antibiotic use, making routine surgery and cancer therapy more risky. AMR is already a serious threat in Ontario with an estimated 6 lives lost every day due to AMR infections.¹ This number is expected to increase without immediate action.

Antimicrobial Overuse is the Main Driver of Antimicrobial Resistance

Approximately 1 in 4 antimicrobial courses prescribed to Ontarians is considered unnecessary.² Addressing antimicrobial overuse through antimicrobial stewardship is a critical component of an overarching One Health strategy to mitigate AMR and requires collective action.³ World AMR Awareness Week (WAAW) is held annually from November 18-24, and aims to improve understanding of this health threat and illustrate collaborative opportunities to prevent the emergence and transmission of AMR. While there are provincial antimicrobial stewardship initiatives for hospitals, long-term care and primary care, engaging the broader public health community is an important step to prevent AMR collaboratively. For WAAW 2023, Public Health Ontario (PHO) developed a map to illustrate regional differences in prescribing, stratified by Public Health Units (PHU) as a first step to exploring further opportunities and identify public health partners to support antimicrobial stewardship (Figure 1).

Figure 1: Regional Variability in Community Antibiotic Prescribing Suggests a Need for Antibiotic Stewardship



ALG = Algoma District, BRN = Brant County, CHK = Chatham-Kent, DUR = Durham Regional, EOH = Eastern Ontario, GBO = Grey Bruce, HAL = Halton Regional, HAM = City of Hamilton, HDN = Haldimand-Norfolk, HKP = Haliburton-Kawartha-Pine Ridge District, HPE = Hastings and Prince Edward Counties, HPH = Huron Perth, KFL = Kingston-Frontenac and Lennox and Addington, LAM = Lambton, LGL = Leeds-Grenville and Lanark District, MSL = Middlesex-London, NIA = Niagara Regional Area, NPS = North Bay Perry Sound District, NWR = Northwestern, OTT = City of Ottawa, OXE = Oxford Elgin St. Thomas, PEL = Peel Regional, PQP = Porcupine, PTC = Peterborough County-City, REN = Renfrew County and District, SMD = Simcoe Muskoka District, SUD = Sudbury and District, THB = Thunder Bay District, TOR = City of Toronto, TSK = Timiskaming, WAT = Waterloo, WDG = Wellington-Dufferin-Guelph, WEC = Windsor-Essex County, YRK = York Regional

How did we make this map? Community antibiotic prescription data from 2022 were provided by IQVIA, a company that collects pharmacy dispensing data. Antibiotic use across Ontario was mapped to one of 34 Public Health Units based on dispensing location. To determine the rate of antibiotic prescribing, population data were gathered from Statistics Canada as a denominator.

There is Variability in Antimicrobial Prescribing in Ontario

In 2022, across Ontario, on average 535 antibiotic prescriptions were dispensed for every 1000 Ontarians. This metric is less than that reported in the US (636 per 1000 inhabitants in 2021)⁴ but higher than many European countries (e.g., 428 per 1000 inhabitants in 2019 in Finland⁵ and 442 per 1000 inhabitants in 2018 in Germany⁶). In Ontario, the most commonly used antibiotics were penicillins (e.g., amoxicillin), macrolides (e.g., azithromycin) and first generation cephalosporins (e.g., cephalexin). Antibiotic use varies across PHUs in Ontario, ranging from as low as 403 to as high as 755 prescriptions per 1000 inhabitants (Figure 1). Differences in antibiotic use can be due to multiple factors including regional differences in patient populations, types of infections, and prescribing behaviour. While there is no ideal target for community antibiotic prescribing, the variability in antibiotic prescribing suggests an opportunity to improve antibiotic use. PHO continues to monitor antimicrobial use and resistance and support antimicrobial stewardship initiatives across the province. However, a joint effort from all stakeholders is needed, including public health practitioners, policy makers, prescribers, and patients.

How can you Help?

1. **Help spread the message** that unnecessary antibiotic prescribing for upper respiratory tract infections is an important target for antimicrobial stewardship. Antibiotics should be avoided for infections caused primarily by viruses like bronchitis, and cold and influenza-like illnesses.
 - **Key Resource:** [Tools from Choosing Wisely Canada](#) include practice change recommendations for respiratory tract infections in primary care.
2. During World AMR Awareness Week, and throughout the year, **encourage awareness** amongst the general public regarding the importance of appropriate antimicrobial use as a way to protect themselves and those around them from antimicrobial resistance.
 - **Key Resource:** [AntimicrobialAwareness.ca](#) is Canada's World AMR Awareness Week resource. It includes information for health care providers and the public on how to fight antimicrobial resistance.
3. **Reach out** to us with ideas, questions, and success stories! Contact Public Health Ontario's Antimicrobial Resistance and Stewardship Team at ASP@oahpp.ca
 - **Key Resource:** [Public Health Ontario's resources](#) include infographics on primary care antimicrobial stewardship strategies and shared decision making tools to support conversations between prescribers and patients about judicious antibiotic use.

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Citation

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Opportunities in public health to improve antibiotic use in Ontario. Toronto, ON: King's Printer for Ontario; 2023

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