

Community Antibiotic Utilization: A Decline Compared to Pre-Pandemic Levels

Choosing Wisely Canada Recommendation

There are multiple recommendations for using antibiotics wisely in primary care.

See <https://choosingwiselycanada.org/primary-care/antibiotics/> for more details.

Practice Points

1. Newfoundland and Labrador (NL) has the highest use of antibiotics per capita in Canada based on federal estimates among selected pharmacies.
2. NL and the Atlantic provinces were credited with one of the largest decreases of outpatient antibiotic use from 2017-2021.
3. During the first year of COVID-19 in NL, prescribing decreased by 26% and remained low for 18 months. The rate of antimicrobial prescriptions/1,000 inhabitants increased by 6.4% in 2022.
4. Starting in mid-2021, overall rates of antimicrobial prescriptions across Canada started to return to pre-pandemic levels. By the end of 2023, antimicrobial prescribing rates were near those in 2019.

Methods

Data on oral antibiotic prescriptions were collected by the NL Pharmacy Network and made available by NL Health Services (NLHS) Digital Health for the period from 1 Jun 2017-31 Oct 2024.

Results

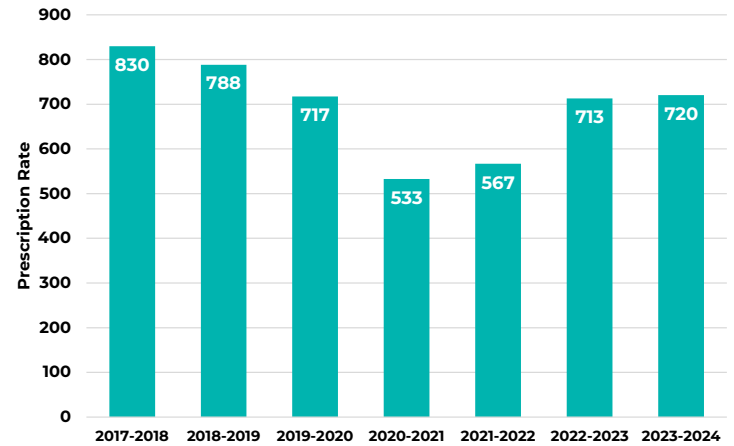


Figure 1. Antibiotic Prescription Rate per 1,000 Population in NL, Jun 2017-May 2024

- As public health restrictions related to the COVID-19 pandemic were lifted (Jun 2022-May 2023), there was an increase in prescribing by 26% compared to the previous year; yet still a decrease of 14% compared to historic levels (Jun 2017-May 2018).
- Prescribing appears to have leveled off with little change in the prescription rate as of most recently (Jun 2023-May 2024).

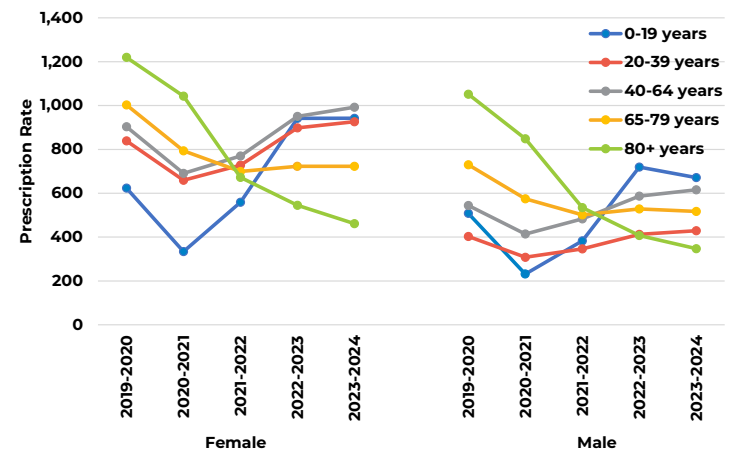


Figure 2. Antibiotic Prescription Rate per 1,000 Population by Gender and Age Group in NL, Jun 2019-May 2024

- In 2019-2020, males and females aged 80 years and older had the highest prescribing rates. The lowest prescribing rates to females were those aged 0-19 years and to males aged 20-39.

- In 2023-2024, males and females aged 80 years and older show a continuing downward trend with the lowest prescribing rates that year. The highest prescribing rates were to females aged 40-64 years and males aged 0-19.

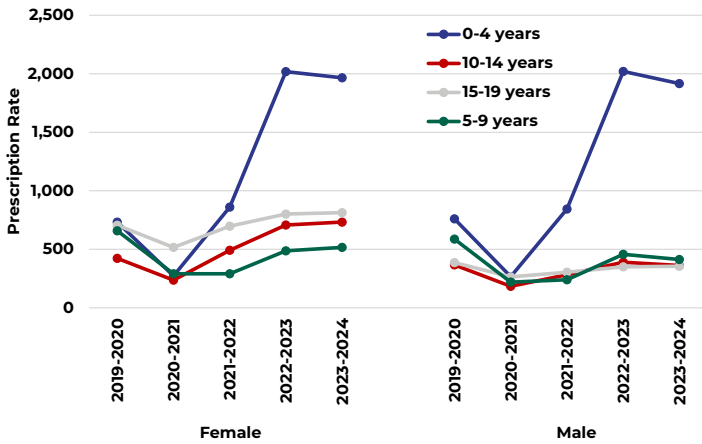


Figure 3. Antibiotic Prescription Rate per 1,000 Population by Gender and Young Age Groups in NL, Jun 2019-May 2024

- At the onset of COVID-19 (2020-2021), prescribing rates dropped for all age groups, with the lowest rates seen in males and females aged 10-14 years.
- As public health restrictions related to the COVID-19 pandemic were lifted (2022-2023), children aged 0-4 years had the highest prescribing rates; an increase of 135% and 140% from 2021-2022 in females and males, respectively.

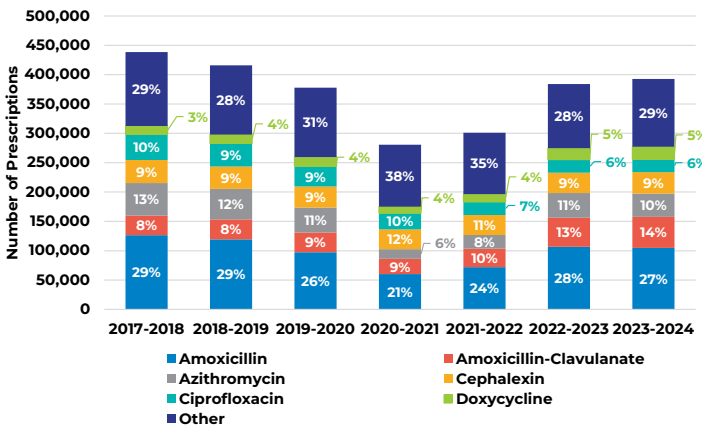


Figure 4. Prescriptions for Common Antibiotics in NL, Jun 2017-May 2024

- In past years (2017-2020), ciprofloxacin made up around 10% of all antibiotic prescriptions. Lately (2021-2024), the proportion of ciprofloxacin prescriptions was 6%.
- Following the pandemic, the proportion of prescriptions for doxycycline increased slightly compared to historic levels.

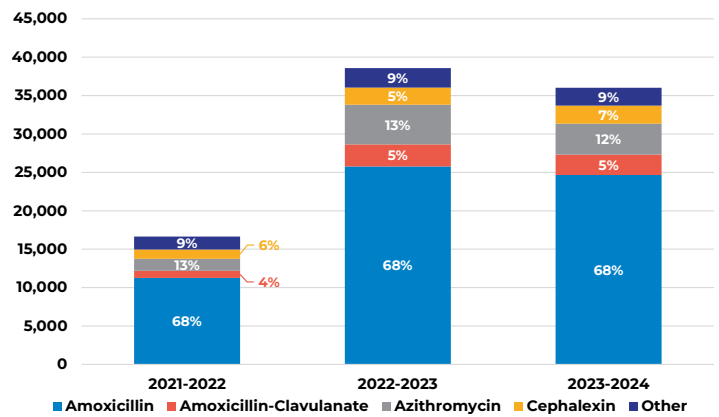


Figure 5. Prescriptions for Patients Aged 0-4 Years for Common Antibiotics in NL, Jun 2021-May 2024

- After 2021-2022, the number of prescriptions for patients aged 0-4 years increased considerably.
- The proportion of prescriptions for azithromycin increased slightly in 2022-2023, but the largest increase in volume was for amoxicillin.

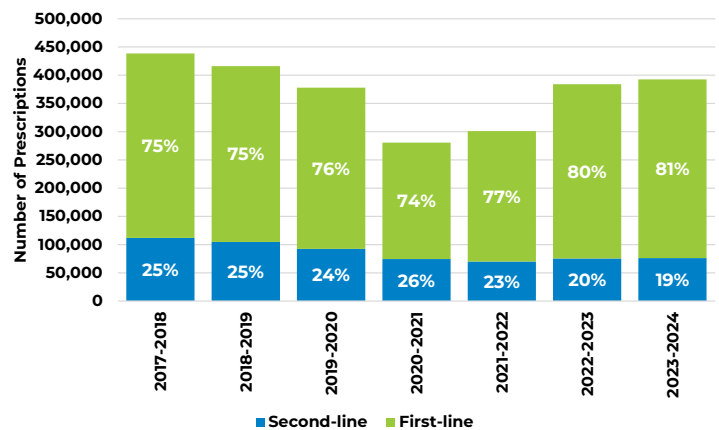


Figure 6. Antibiotic Prescriptions Analyzed by Treatment Type in NL, Jun 2017-May 2024

- Quinolones and cephalosporins are considered second-line antibiotics in most prescribing guidelines and their use should be restricted to ensure their availability, should first-line antibiotics fail.
- After 2021, the proportion of second-line antibiotics prescribed in NL decreased from historic levels.
- The proportion of second-line prescriptions in Canada in 2017 was 19.8%.

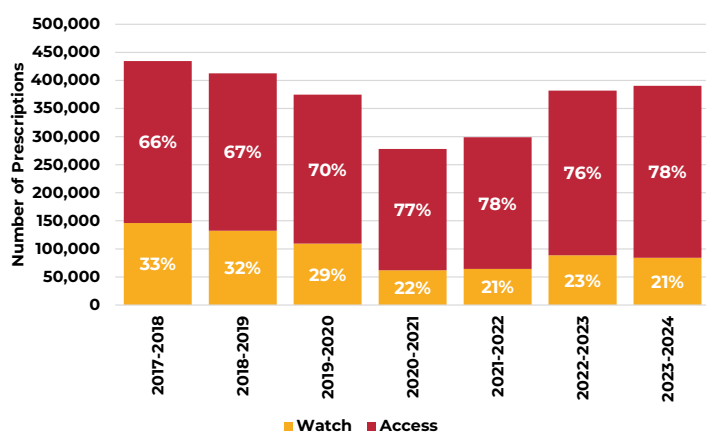


Figure 7. Antibiotic Prescriptions by WHO AWaRe Category in NL, Jun 2017-May 2024

- AWaRe (Access, Watch, Reserve) is a system developed by the World Health Organization (WHO) to group antibiotics according to their spectrum of activity against microbes and their risk of developing antimicrobial resistance.
- In past years (2017-2020), the proportion of prescriptions for Access antibiotics (low resistance potential) was between 66% and 70%.
- Since the onset of COVID-19, 76% to 78% of prescriptions were for Access antibiotics in NL, surpassing the WHO's benchmark and the national average.

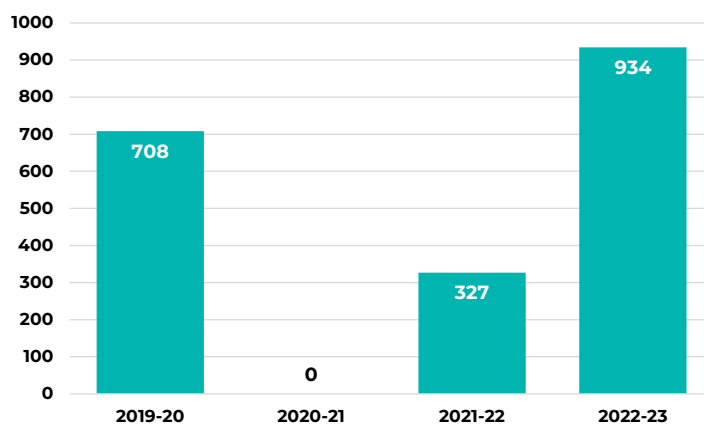


Figure 8. Annual laboratory-confirmed cases of influenza in NL, 2019-2023

- The number of confirmed influenza cases increased following the COVID-19 pandemic, exceeding pre-pandemic levels.

Conclusions

1. The period following COVID-19 saw an increase in antibiotic prescribing, although there was a 14% decrease in antibiotic prescribing compared to historic levels (2017-2018).
2. It is possible that increasing numbers of influenza cases or invasive Group A Streptococcal infections drove up antibiotic prescribing, particularly in younger age groups.
3. Treatment of upper respiratory tract infections in adults and children such as acute otitis media should focus on analgesia and the use of antibiotics should be limited to complicated or severe cases. Postdated antibiotics prescriptions are an effective alternative to immediate antibiotics to reduce antibiotic use.
4. While prescribing rates returned to pre-pandemic levels for most age groups, the rate for those aged 65 years and older showed steady declines from historic levels to the present day.
5. NL is on par with or exceeding national and international standards for antimicrobial stewardship, namely WHO AWaRe and proportion of second-line antibiotics.