

Impact of National Antibiotic Guidelines (NAG 2019) on antibiotic appropriateness in primary care: An interrupted time series analysis

Lim Audrey Huili¹, Ab Rahman Norazida¹, Ong Su Miin¹, Mohamad Azman Siti Raidah², Tok Peter Seah Keng¹, Sivasampu Sheamini¹

¹Institute for Clinical Research, National Institutes of Health, ²Family Health Development Division, Ministry of Health, Malaysia

ABSTRACT

Introduction: The National Antimicrobial Guidelines in 2019 (NAG 2019) targeted rational and judicious use of antibiotics. In this study, we aimed to evaluate the impact of NAG 2019 on antibiotic appropriateness and utilisation for respiratory tract infections in Malaysia's public primary care. **Methods:** Interrupted time series analyses on rates of antibiotic appropriateness and utilisation were performed using prescription data from the Teleprimary Care (TPC) database from January 2017 to December 2019. Upon matching of diagnosis, antibiotic appropriateness was determined based on drug, dose, frequency, and duration, for the following respiratory tract infections: bronchitis, pharyngitis, pneumonia, and rhinosinusitis. Rates of antibiotic utilisation were reported as DDD per 1000 patients per day (DID) and stratified according to antibiotic classes. **Results:** Of the 8,180,142 prescriptions recorded in TPC, 4.51% (n=369,197) were antibiotic prescriptions. Upon the introduction of NAG2019, there was a substantial immediate increase in antibiotic appropriateness level by 65.58% (p<0.001) for respiratory tract infections. However, there was a subsequent decreasing trend though not significant, in the monthly rate of antibiotic appropriateness by 0.45% (p=0.068). For antibiotic utilisation, we observed significant decreases over the study period in both the level of utilisation by 1.57 DID (p<0.001) and the trend of utilisation by 0.05 (p<0.001). **Conclusion:** Our findings indicate that the introduction of NAG 2019 led to a substantial increase in antibiotic appropriateness for respiratory tract infections. At the same time, antibiotic utilisation decreased. Further research is needed to ascertain the sustainability of these changes and to evaluate the impact of NAG 2019 on other diagnoses.