

ANTIBIOTIC PRESCRIPTION RATES AMONG CHILDREN FELL TO AN ALL-TIME LOW DURING THE COVID-19 PANDEMIC – RESULTS FROM NATIONWIDE REAL-LIFE MONITORING OF ANTIBIOTIC USE IN GERMANY

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Background: European surveillance data showed a reduction of antibiotic use in the general population between 2019 and 2020 by more than 15%. As compared to the pre-pandemic period the incidence of both, viral and bacterial infections decreased (Ulrich et al. 2021). In addition, several countries including Australia (Gillies et al. 2021), England (Andrews et al. 2021), and USA (Chua et al. 2021) observed the reduction in antibiotic prescriptions in the early phase of the pandemic. The current study provides results from ongoing real-life monitoring of outpatient antibiotic use among children from January 2010 up until December 2021.

Methods: We analysed nationwide outpatient prescription claims of the German Statutory Health Insurance (SHI). All SHI-children aged 0-14 years (n=9,688,483 at July 1, 2021) were included, covering about 83% of the total paediatric population in Germany. Monthly antibiotic prescription rates per 1,000 children before (2010-2019) and during the pandemic (2020-2021) were examined. Interrupted time series analysis was applied to examine the effect of mitigation measures in Germany (April 2020 and January 2021) on antibiotic prescription rates.

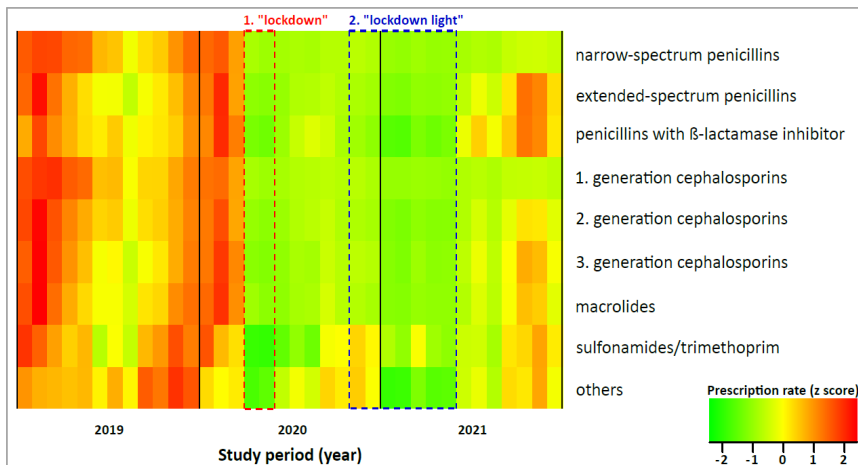


Figure 2. Trends in monthly antibiotic prescription rate per 1,000 children aged between 0 and 14 years by antibiotic subgroup in the period 2019 to 2021

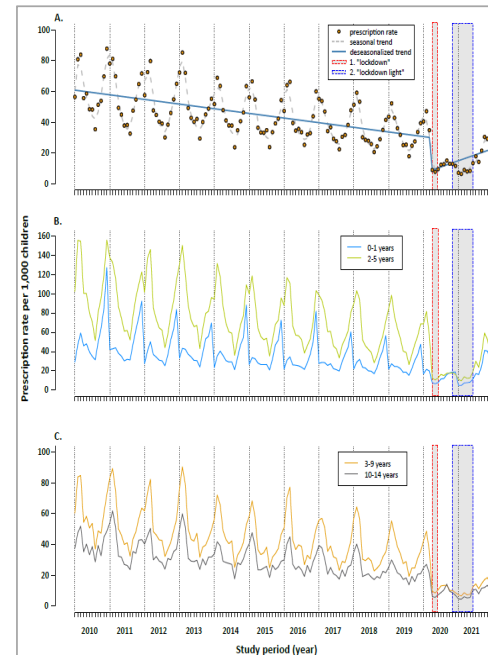


Figure 1. Trends in monthly antibiotic prescription rate per 1,000 children aged between 0 and 14 years (A.) and by age group (B. and C.) in the period 2010 to 2021

The first lockdown was introduced on March 23th, 2020 and comprised extensive contact restrictions. The second, so-called 'lockdown light' took place in November 2020.

Results: Prescription rates showed an expected seasonal pattern of high antibiotic use between January and March 2020 (34-41/1,000 children), but declined steeply following closures of day care centers and schools in April to 9 prescriptions per 1,000 children ($p < 0.0001$, fig 1). The rates remained low until August 2021 at an average of 11 prescriptions per 1,000 children. Overall, the annual paediatric prescription rate declined by 43% from 2019 to 2020 and by 58% from 2019 to 2021. Marked reductions were observed for all antibiotic subgroups (fig 2).

Discussion: This study provides a continuously updated national picture of paediatric antibiotic use during the COVID-19 pandemic. Substantial reductions in prescription rates may indicate limited access to medical care and changes in care seeking behaviour. However, as national inpatient surveillance of serious respiratory infections among children showed no typical seasonal increase in winter 2020/2021, reduced antibiotic use likely reflects a reduction in the incidence of infectious diseases.

References

Ulrich A et al. Impact of the COVID-19 pandemic and associated non-pharmaceutical interventions on other notifiable infectious diseases in Germany: An analysis of national surveillance data during week 1-2016 - week 32-2020. *Lancet Reg Health Eur.* 2021 Jun
 Chua KP et al. Prescription Drug Dispensing to US Children During the COVID-19 Pandemic. *Pediatrics.* 2021