



# Outpatient use of systemic antibiotics in Germany from 2010 to 2018—A population-based study

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## Abstract

### Background

Since 2012 the German Health Care Atlas has continuously been publishing comprehensive data on outpatient antibiotic use in Germany to facilitate targeted interventions to strengthen rationale prescribing. The aim of the current study was to provide an update on the latest trends in outpatient antibiotic prescribing between 2010 and 2018. Special attention was given to age-specific antibiotic use in the paediatric population.

### Methods

This study was based on a full sample of statutory health insured citizens (~85 % of German inhabitants). Annual antibiotic prescription rates (2010–2018) were calculated per 1,000 persons country-wide and on the level of the 17 regional Associations of Statutory Health Insurance Physicians (SHI-Physicians Association; *Kassenärztliche Vereinigung, KV*) using age groups 0–1, 2–5, 6–9, 10–14, 15–64 and ≥65 year(s). Poisson regression was employed to estimate trends of prescription rates per age group, regional SHI-Physicians Association and antibiotic subgroup.

### Results

In 2018, the age group of 2–5 years exhibited by far the highest prescription rate amounting to 683 prescriptions per 1.000 persons (0–1 year: 320, 6–9 years: 417, 10–14 years: 273, 15–64 years: 426, ≥65 years: 517). Overall, antibiotic prescribing decreased significantly by 21 % from 562 (2010) to 446 (2018) prescriptions per 1.000 persons and year. The reduction was most pronounced in children 0–1 year of age (–50%), followed by the age groups 2–5 years (–44%) and 10–14 years (–41%). Prescription rates decreased in all regional SHI-Physicians Association and for the majority of antibiotic subgroups. In 2018, rates varied by a factor of 1.8 between the region with the highest (Saarland: 572) and the region with the lowest use (Saxony: 317).

### Conclusion

The observed marked reductions of antibiotic prescribing during the last decade indicate a striking change of paediatric prescribing patterns and may be attributed to numerous initiatives to strengthen judicious and rationale prescribing habits. However, strong regional variations remain and underscore the need for regionally targeted interventions. In this context, future surveillance studies should monitor measures of antibiotic prescribing on the smaller spatial scale of German districts.



#### Keywords

Antibiotics, prescription, DDD, infectious diseases, practice guidelines, prescription rate, surveillance, trend analysis

#### Citation

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