

# Antibacterial prescribing in the outpatient setting: results from a longitudinal study and a sentinel network of physicians, Switzerland

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## Background and Objectives

Inappropriate or unnecessary use of antibacterials may foster the development of antibiotic resistance.

Our goals were to assess the global antibacterial use, the number of antibacterial prescriptions per 100'000 inhabitants and the proportion of antibacterial families per clinical indications in the outpatient setting in Switzerland.

## Method

We analyzed two sources of data:

- IQVIA<sup>®</sup>, a private provider of manufacturers' sales, delivered aggregated data which were then converted into defined daily doses (DDD) using the 2019 WHO DDD definition and
- all consultations with antibacterial prescriptions reported from 146 practitioners from general and internal medicine during 2018 using the representative Swiss Sentinel Surveillance Network "Sentinella". The network covers all regions of Switzerland. Extrapolation on population level was done by attributing the estimated covered population to each Sentinella physician. Data from pediatricians were excluded.

## Results

From IQVIA<sup>®</sup>:

In 2019, the total consumption of antibacterials for systemic use in outpatients was 9.1 DDDs per 1'000 inhabitants per day, corresponding to a reduction of 4% since 2016.

In comparison, the median consumption in 2018 was 18.4 DDDs per 1'000 inhabitants per day (range between 8.9 in the Netherlands and 32.4 in Greece) in the countries participating in the European Surveillance of Antimicrobial Consumption Network (ESAC-Net) [1].

From "Sentinella" network:

- A total of 13'478 antibacterial prescriptions were issued by participating physicians in 2019, corresponding to 9'888 antibacterial prescriptions per 100'000 inhabitants.
- Bladder infections (26%), upper respiratory tract infections (26%) and lower respiratory tract infections (20%) were the main clinical indications for prescribing antibacterials (Fig 1).
- Acute bronchitis and streptococcal pharyngitis accounted for 9% and 7% of total antibacterial prescriptions.
- Fosfomicin (31%), fluoroquinolones (24%), co-trimoxazole (21%), and nitrofurantoin (15%) were the most prescribed antibacterials for bladder infections (Fig 2).
- For lower respiratory infections, amoxicillin (33%), macrolides (29%) and penicillins with beta-lactamase inhibitors (9%) were the most prescribed antibacterial classes. Fluoroquinolones accounted for 7% of antibacterials for this indication.

## Reference

[1] European Centre for Disease Prevention and Control. Antimicrobial consumption in the EU/EEA, annual epidemiological report for 2018. Stockholm: ECDC; 2019

## 1. Clinical indications for prescribing antibacterials

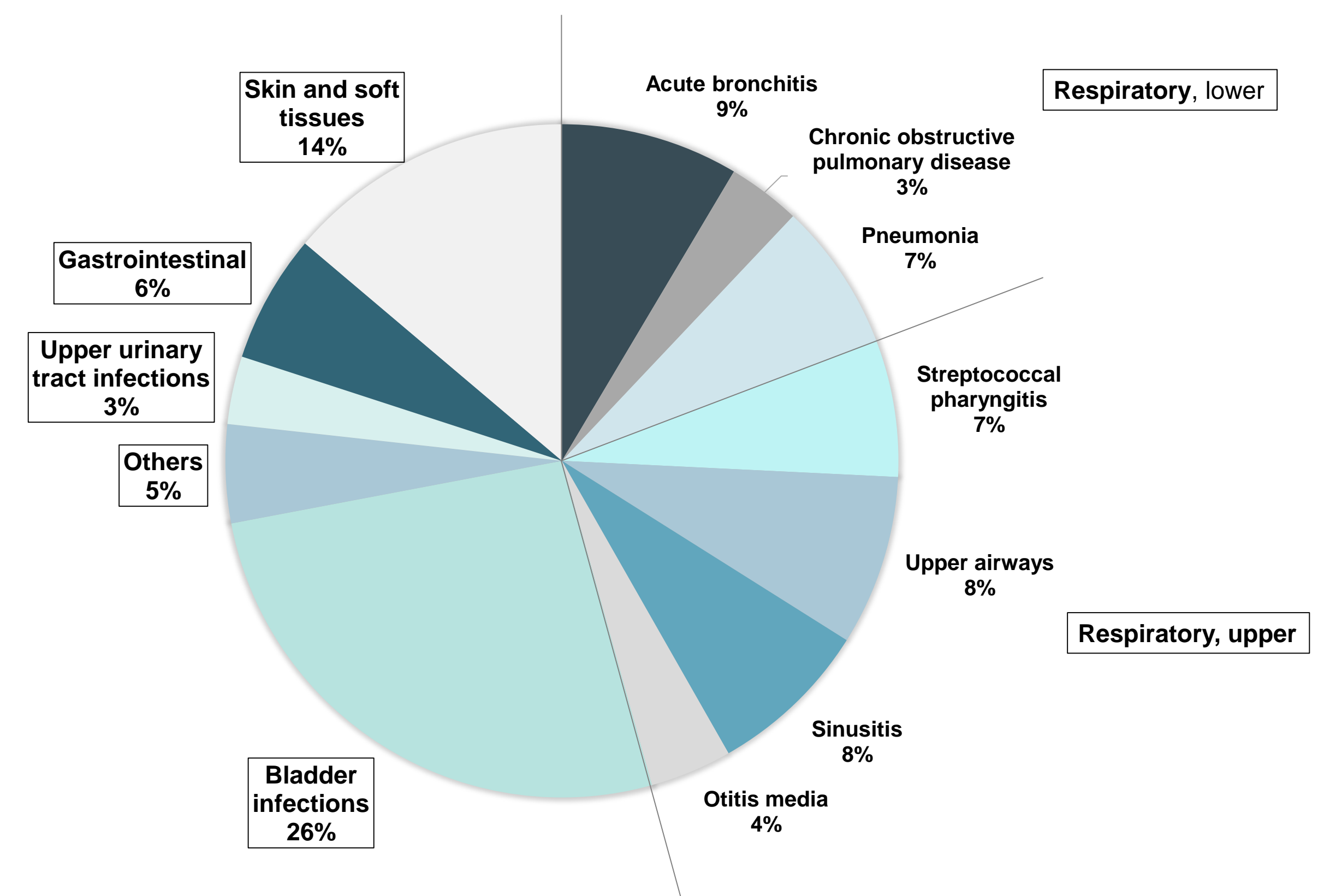


Figure 1: Proportion of clinical indications for prescribing antibacterials by general practitioners participating to the Sentinella network, 2019

## 2. Prescriptions by antibacterial family

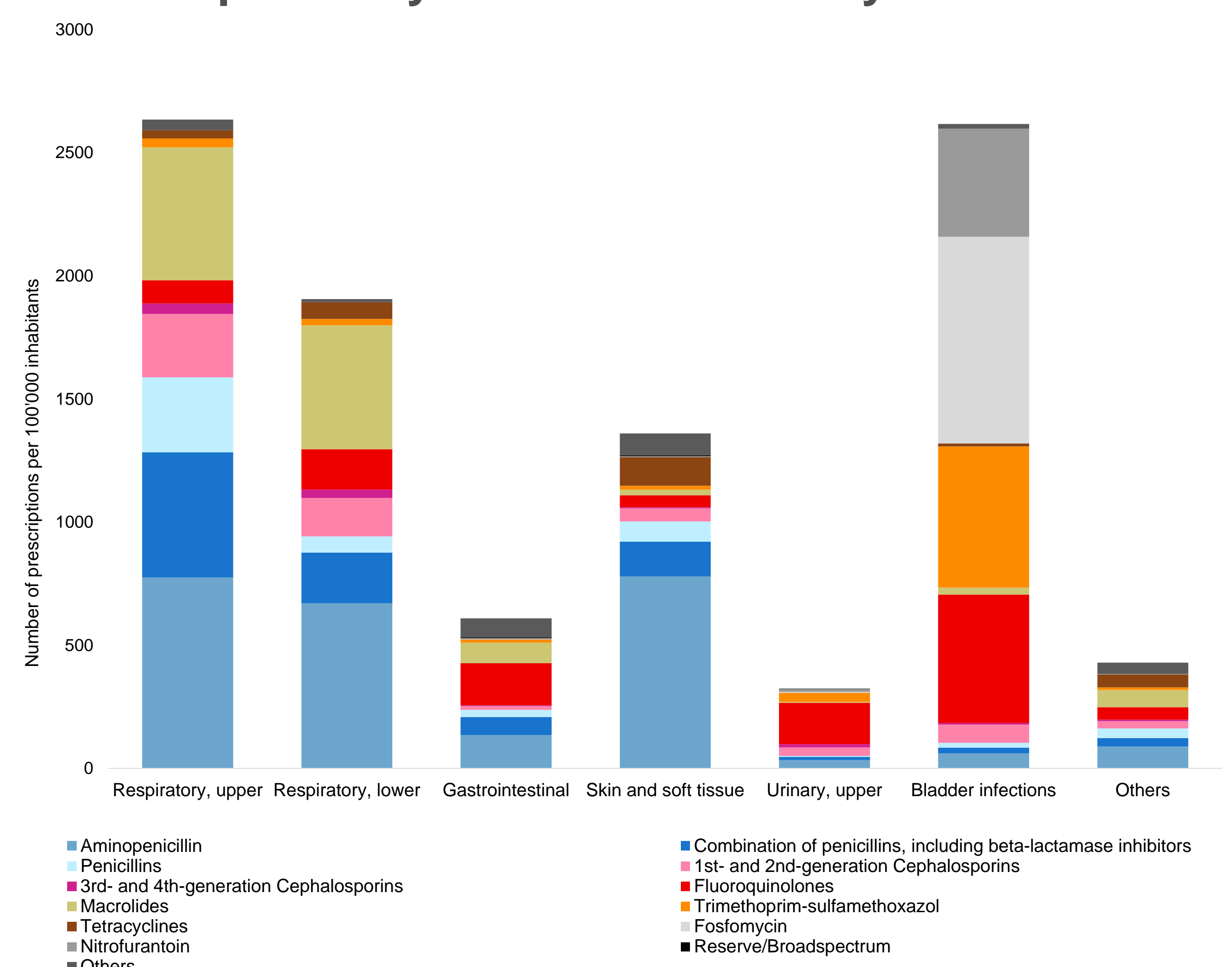


Figure 2: Antibacterial prescriptions by indications and antibacterial family issued by general practitioners participating to the Sentinella network, expressed in number of prescriptions per 100'000 inhabitants, 2019

## Conclusion

Even if antibiotic consumption in Switzerland is low in comparison with other European countries, the quality of antibacterial prescriptions can be optimized, particularly in reducing

- the use of antibacterials in acute bronchitis, a viral infection in more than 90% of cases and
- the use of fluoroquinolones for bladder infections.

Resources for antibiotic stewardship programs in the outpatient setting are also needed in countries with low antibacterial consumption.