

# HOSPITAL USE OF ANTIBIOTICS IN SWITZERLAND: INVESTIGATION OF A MONITORING SYSTEM

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## Objectives

A monitoring of antibiotic use would be helpful to:

- understand the main determinants of bacterial resistance;
- predict the evolution of this resistance;
- plan interventions fostering an appropriate use of antibiotics;
- measure the impact of these interventions.

The goal of this project was to assess the performance of a sentinel network for monitoring antibiotic use in public acute care hospitals in Switzerland.

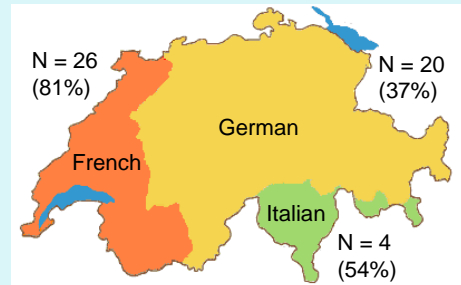


Fig.1 Distribution of participating hospitals by linguistic region (expressed in absolute number and proportion of all public beds in the region).

## Method

Data on 2004–2005 antibiotic consumption collected from a network of hospital pharmacists were compared to data available from a private provider of manufacturers' sales. Aggregated data were converted into defined daily doses (DDD).

## Results

Fig.1 shows the distribution of participating hospitals (N, % of all public beds) by linguistic region. Findings from the sentinel data showed characteristics and trends by linguistic region similar to the market data (fig.2).

However, hospital pharmacists' data allowed further in-depth analyses : adjustment of antibiotic consumption to hospital activity (DDD per 100 patient days (fig.3) or per 100 admissions), stratification by hospital size (fig.4), measure of antibiotic use in specific hospital wards (e.g. intensive care units, ICU) (fig.5).

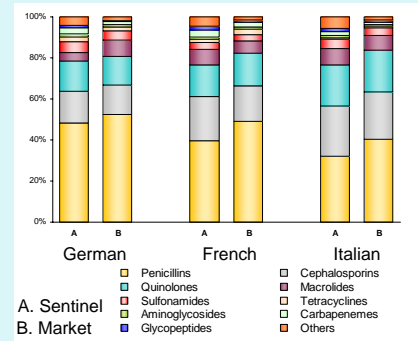


Fig. 2 Use of antibiotic families (in %) in the sentinel network and in the market.

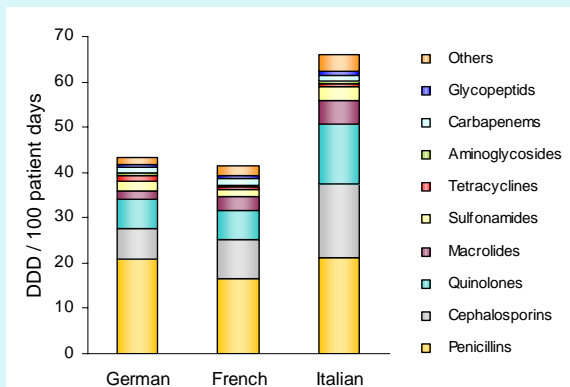


Fig. 3 Density of antibiotic families expressed in DDD per 100 patient days in the sentinel network in 2005 per linguistic region ( $p = 0.05$ , ANOVA).

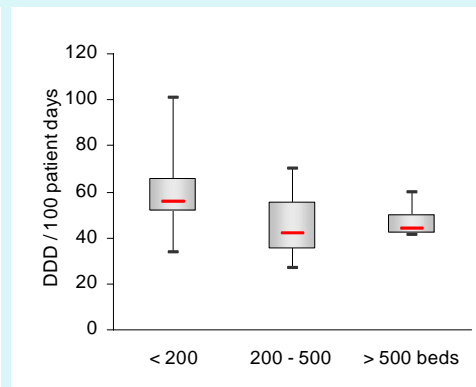


Fig. 4 Total density of antibiotic use expressed as DDD per 100 patient days in 2005 by hospital size ( $p < 0.05$ , ANOVA).

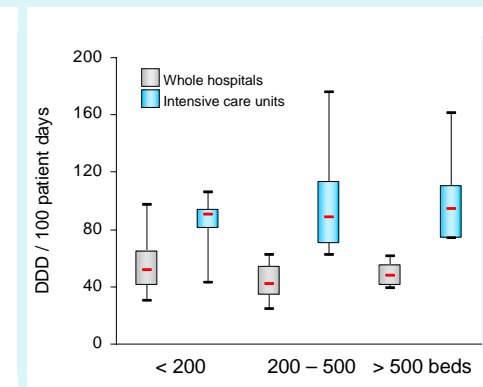


Fig. 5 Total density of antibiotic use in the whole hospitals (grey) and in the ICU (blue) expressed as DDD per 100 patient days by hospital size in 2005 ( $p < 0.001$ , ttest).

## Conclusions

- Antibiotic data from hospital pharmacists ensure high quality information and flexibility.
- They are close to the clinical practice.
- The sentinel network allows benchmarking among participating hospitals.
- The development of a continuous monitoring of antibiotic use seems to be an achievable objective for the future.