

Session: P051 Outpatient antibiotic prescription measurement and surveys

**Category: 5d. Pharmacoepidemiology, improved prescribing and antibiotic stewardship**

24 April 2017, 12:30 - 13:30  
P1140

**Analysis of the changes in antibiotic use in the community in Belgium between 2004 and 2012: comparison between DDDs and prescription numbers, position of the fluoroquinolones, and impact of public campaigns**

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## **Background:**

Belgium, which in the late 1990's was among the EU countries with highest antibiotic consumption (Cars *et al.* Lancet. 2001;357:1851-3) has organized, since 2000, yearly campaigns targeted to the general public to try reducing the use of antibiotics in the community. While initial surveys showed a transient but significant reduction of antibiotic use (based on national measurements of Defined Daily Doses using reimbursement data; Bauraind *et al.*, JAMA 2004;24:2468-70), analysis of the whole 2000-2014 period with the same metric showed a plateau up to 2006 followed by a slow but steady increase (13.9%) up to 2014 (Tulkens PM., ASM-Microbe 2016, oral session 014). Our aim was to cross these data with data concerning the actual number prescriptions in order to better characterize this increase in global antibiotic use.

## **Material & methods:**

Data source: Database of one of the major Belgian health social organization (Mutualités socialistes [Solidaris]; channelling drug reimbursement from the National Social Security to about 40% of the Belgian population) with access to both DDDs and no. of prescriptions of antibiotics for systemic use (ATC group J01, with separate analysis of the beta-lactams [J01C] and fluoroquinolones [J01MA]) in the community. Data were cross-checked with the profile of the prescriber (active/inactive) and for the patient's main characteristics, including use of non-antibiotic drugs for treatment of major pertinent

chronic co-pathologies (diabetes, COPD). Only aggregated data were used to respect prescriber's and patient's anonymity.

### **Results:**

Over the 2004-2012 period, the number DDDs for J01 antibiotics increased (~16%) almost exactly in parallel to what had been reported for the whole country (national data) over the same period, indicating no sampling bias due to the more limited population included in our current analysis. The number of prescriptions per reimbursed patient remained stable ( max. 2.6% increase), indicating that a larger amount of antibiotic per prescription accounted for most of the change in DDDs, but showing also no trend for reduction of prescription behaviour and overall antibiotic consumption at the patient population level. About 41% of patients seen over a 1 year period by an active general practitioner received an antibiotic prescription (beta-lactams ~40%; fluoroquinolones ~5.5% with no correlation with use of COPD drugs). All antibiotic prescriptions increased in the winter season.

### **Conclusions:**

We confirm here that public campaigns undertaken in Belgium have not been associated with a decreased patients' global antibiotic exposure (DDD) or in number of individual prescriptions (in the population analysed), with fluoroquinolones representing only a minor proportion of global antibiotic use. More research is needed to better understand the reasons for maintenance of such high level of antibiotic prescription and use in Belgium and to find how to reduce it and to decrease the risk of antibacterial resistance.