

Over a four-year program period we achieved marked reduction of fluoroquinolone use and expenditure, increase of aminoglycoside and carbapenem consumption with no changes to cephalosporin use. Cephalosporins and carbapenems accounted for increase of total antibiotic expenditure.

The Problem

- Antibiotics accounted for major hospital medicine expenditures and consumption in 2010-11, were misused and abused, contributing to the growing problem of antimicrobial resistance and nosocomial infections.
- Individual case analyses revealed major problems in fluoroquinolone use.

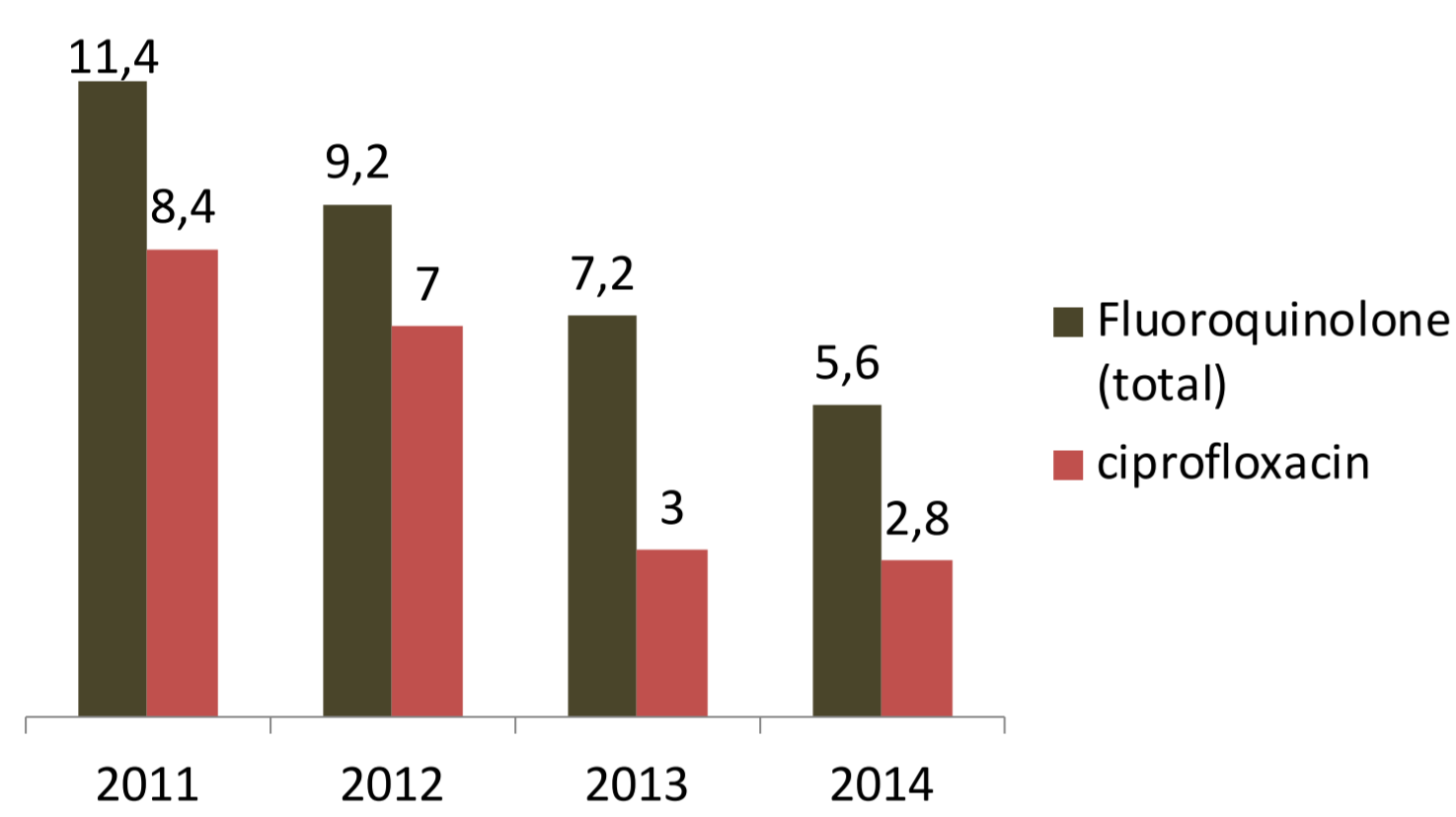
Objective

To establish antibiotic monitoring and training program tailored to identified drug use problems using consumption and expenditure data as impact measures over the period 2011-2014.

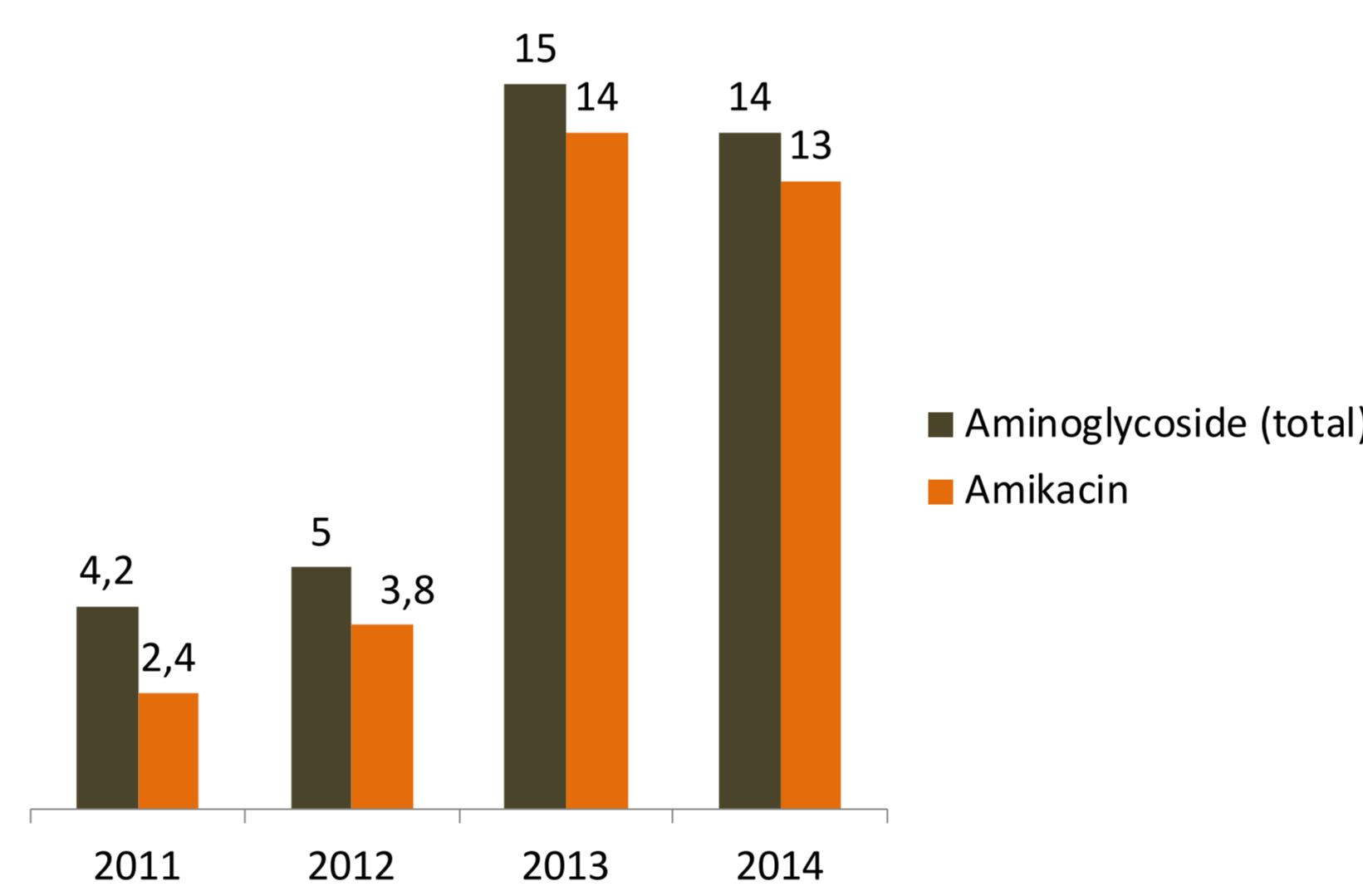
Methods

A team of clinical pharmacologists delivered the monitoring and training program, and carried out analysis of antibiotic consumption and expenditure over 4 years at a tertiary regional multidisciplinary hospital using the WHO ATC/DDD methodology. Over the 4 years, the hospital used from 900 to 990 beds annually with 49-52 acting departments (2 – general surgery, one of thoracic surgery, 2 - urology, one of maxillofacial surgery, neurosurgery, gynecology, 2 - neurology, 2 - cardiology, rheumatology and other therapeutics, not infectious disease, tuberculosis or psychiatry).

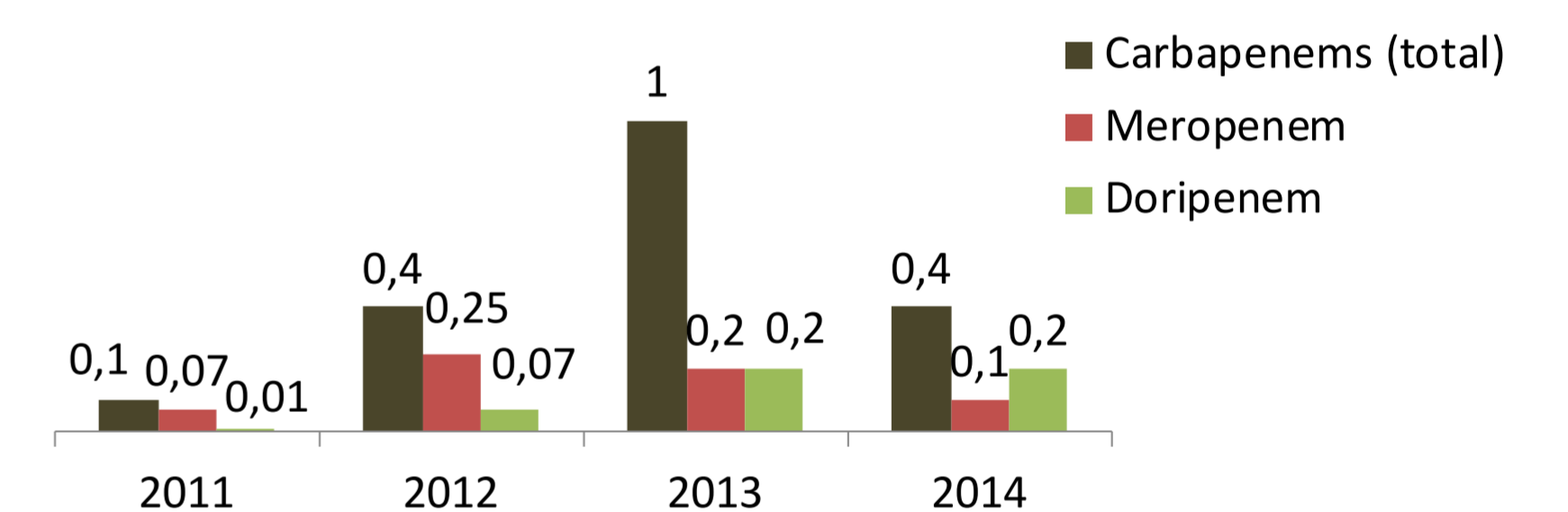
Key Results



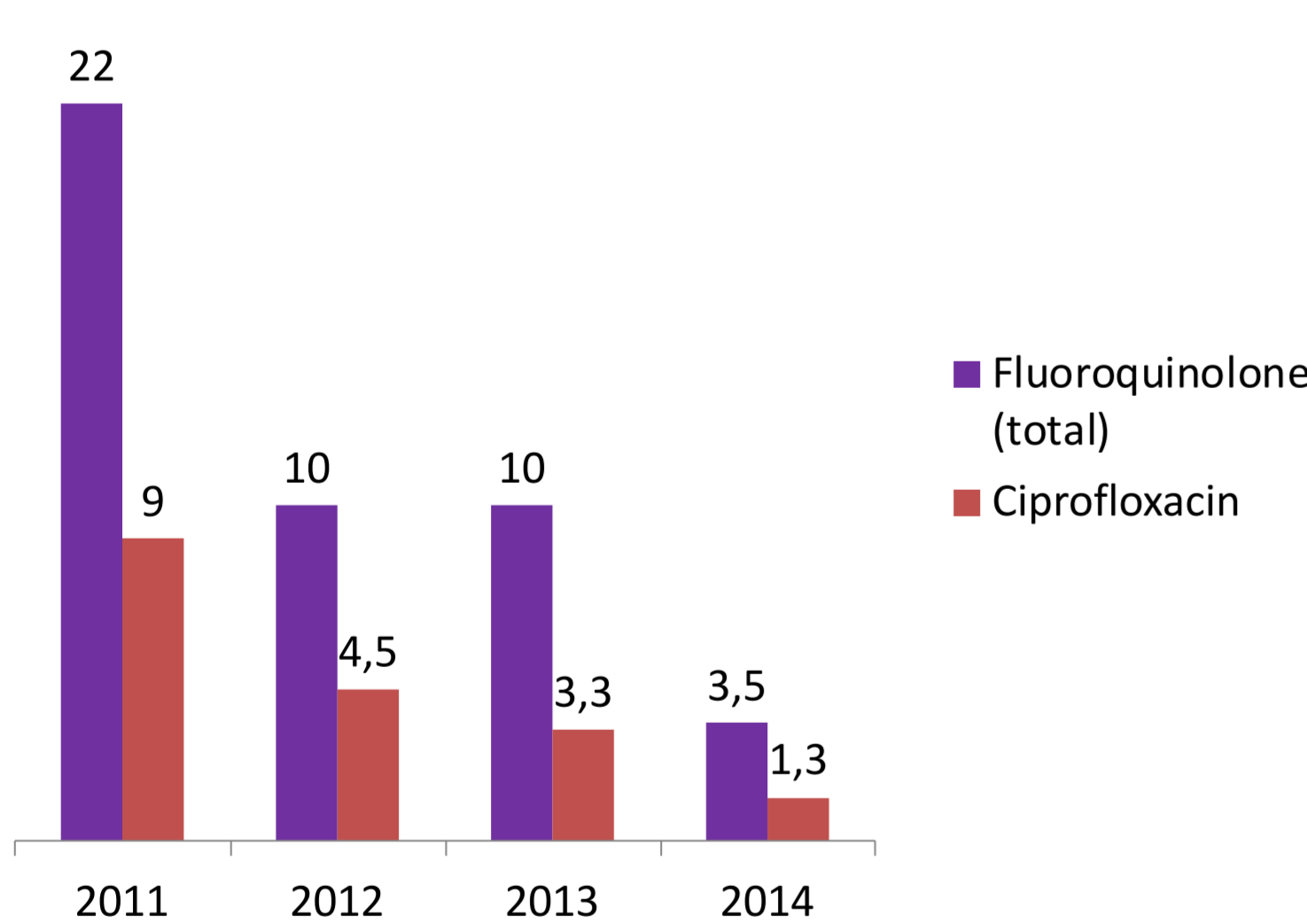
Fluoroquinolone (total) and ciprofloxacin consumption, DDD/100 bed-days



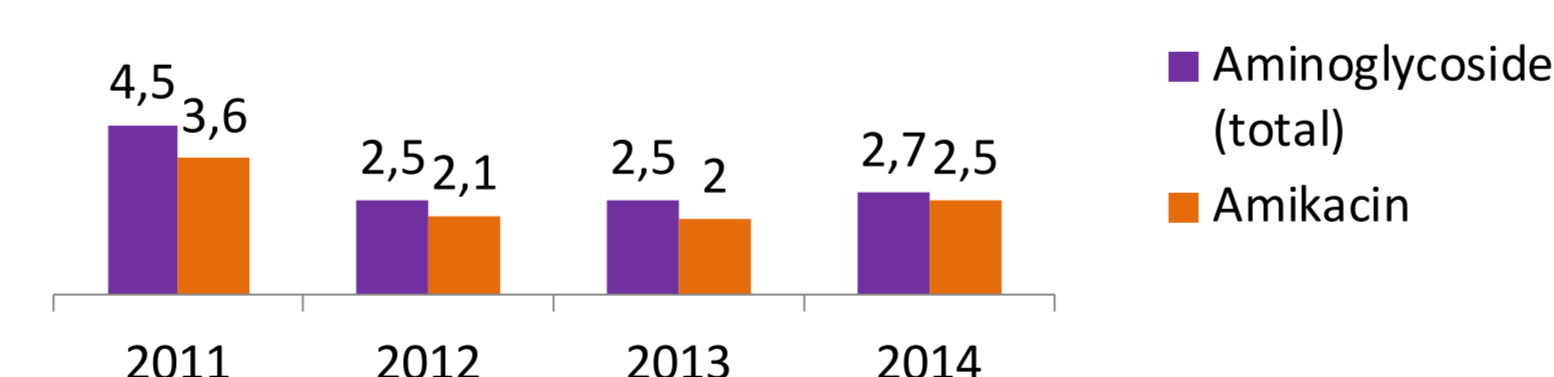
Aminoglycoside (total) and amikacin consumption, DDD/100 bed-days



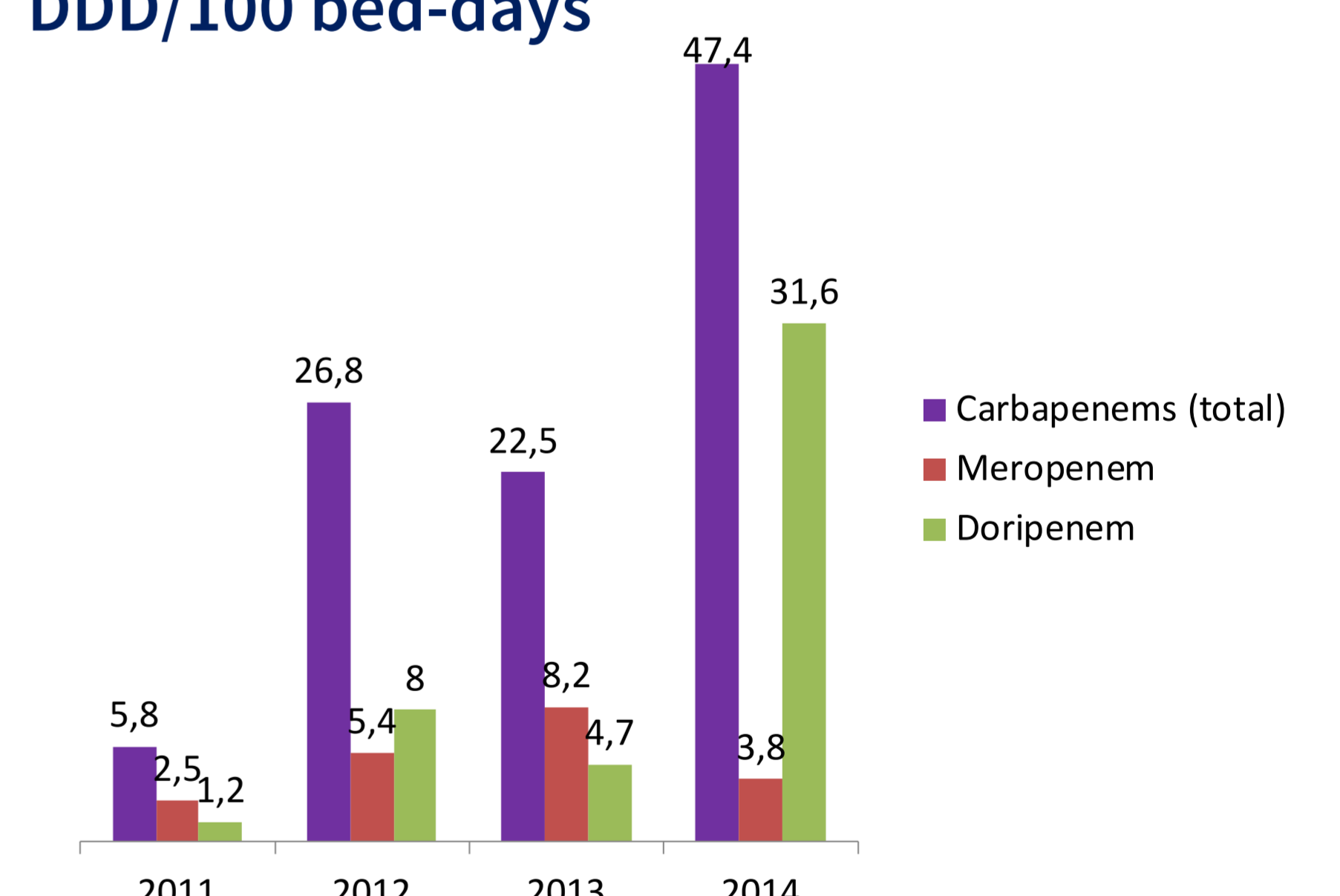
Carbapenems' consumption, DDD/100 bed-days



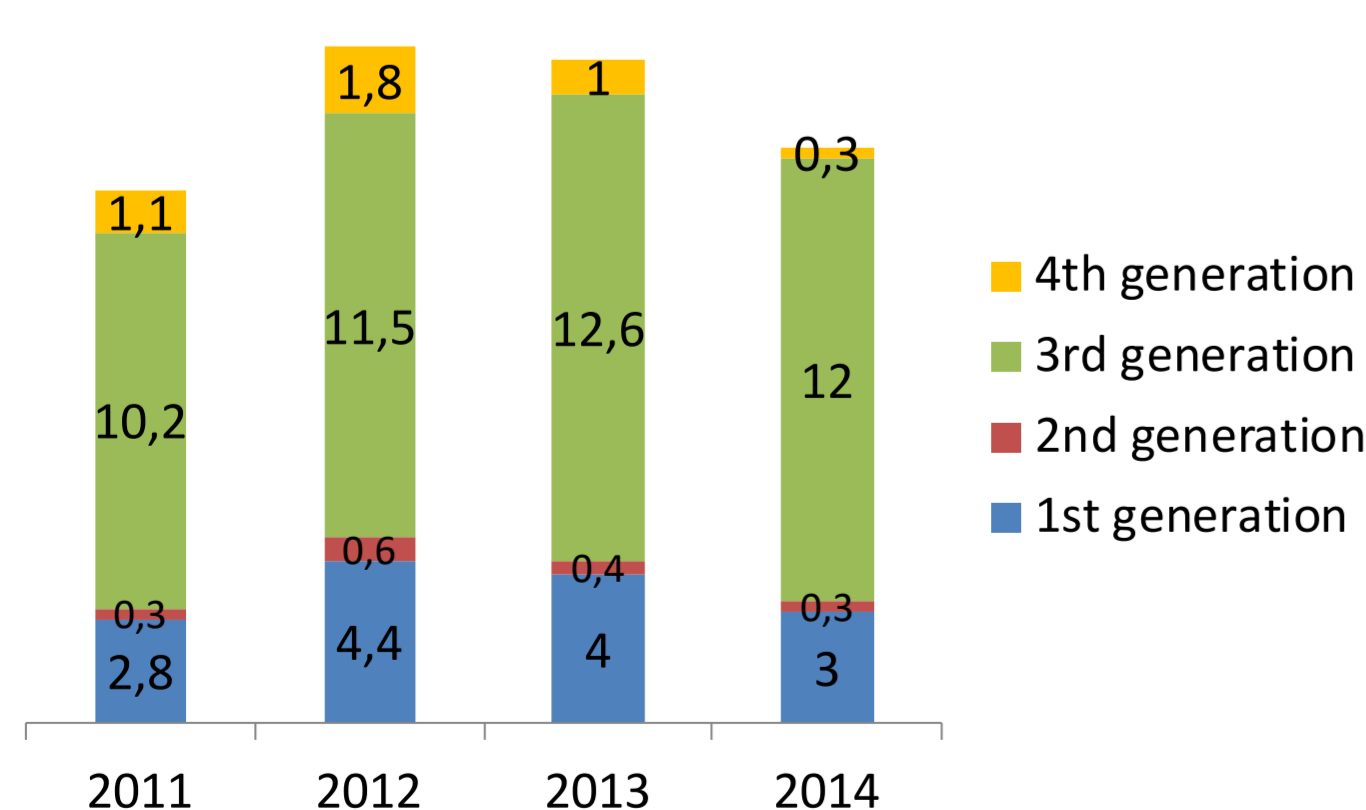
Fluoroquinolone (total) and ciprofloxacin expenditure, % of total antibiotic expenditure



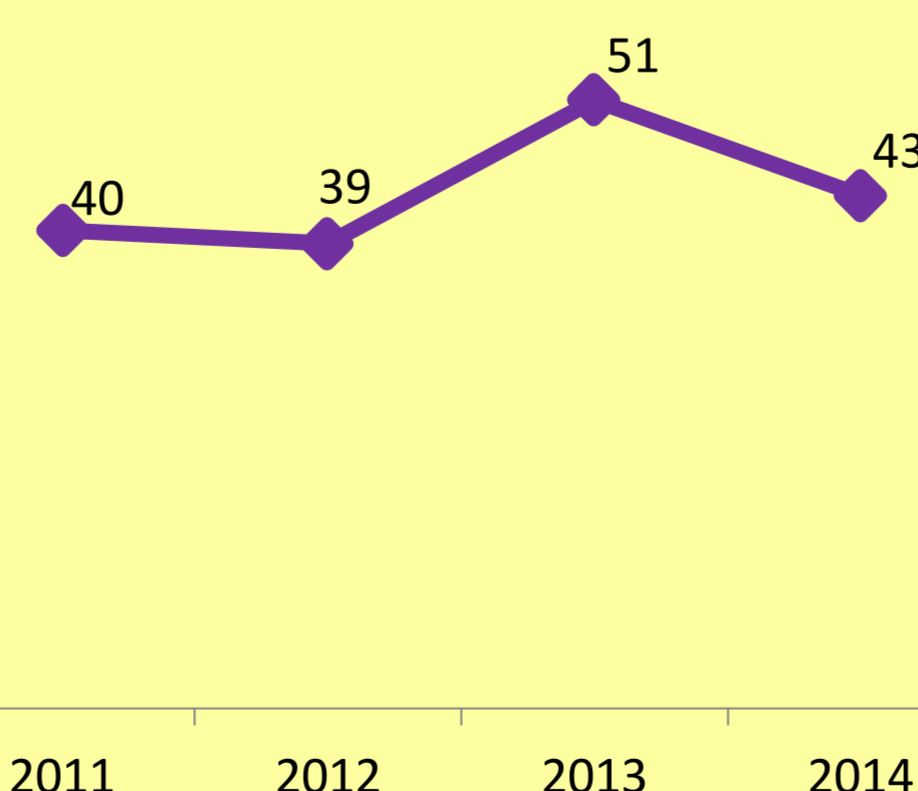
Aminoglycoside (total) and amikacin expenditure, % of total antibiotic expenditure



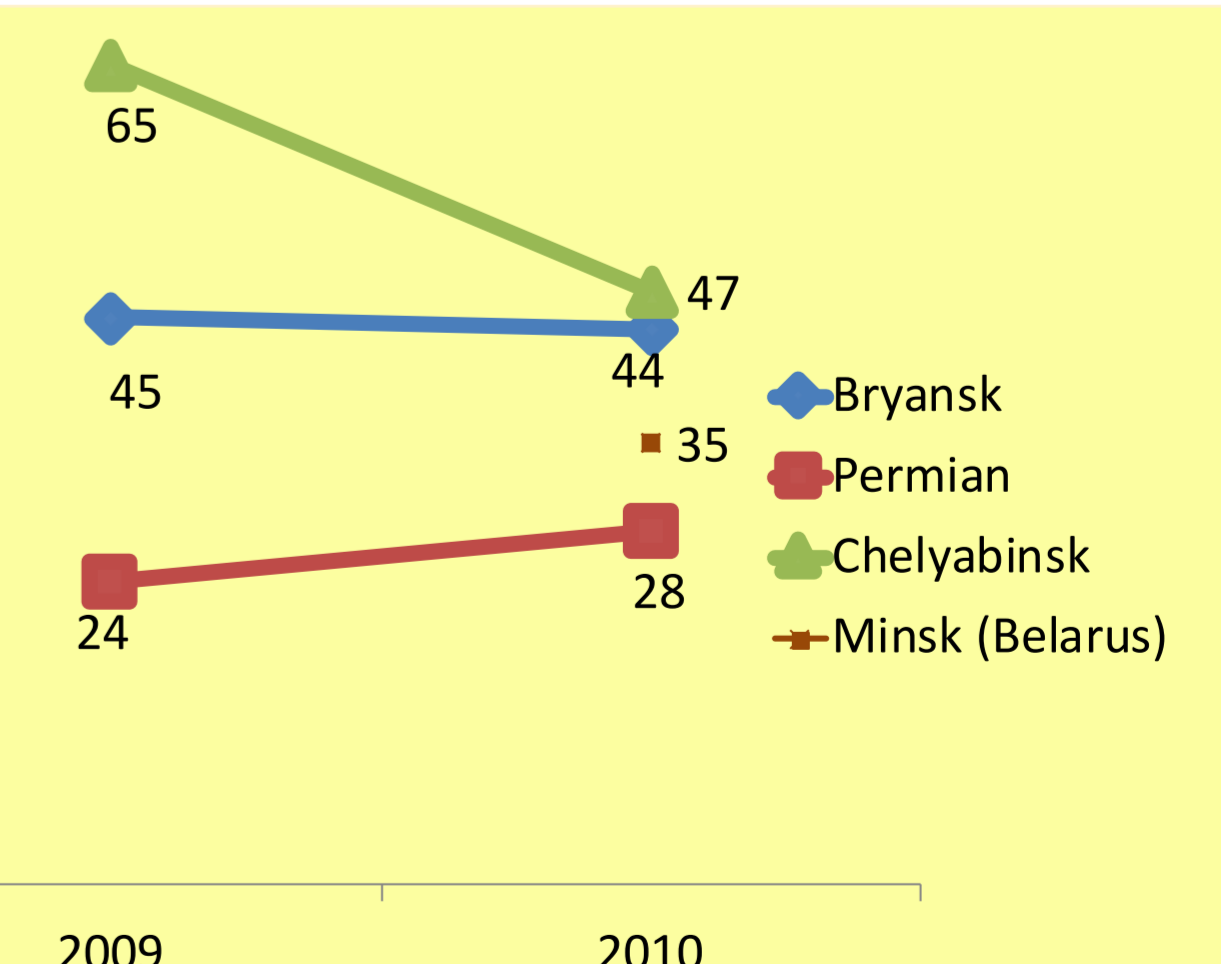
Carbapenems' expenditure, % of total antibiotic expenditure



Cephalosporins' consumption, DDD/100 bed-days



Total antibiotic consumption in Penza Central Hospital, DDD/100 bed-days



Total antibiotic consumption in various tertiary regional multidisciplinary hospitals of Russia and Belarus, DDD/100 bed-days

Y.A. Belkova, S.A. Rachina, R.S. Kozlov et al. Systemic Antimicrobials Consumption and Expenditures in Multi-Profile Hospitals in Russian Federation and Republic of Belarus: the Results of Multicenter Pharmacoepidemiological Trial. CMAC 2012; 14(4): 322-341.

Establishing medicine use monitoring and training program at a tertiary multidisciplinary hospital: impact on antibiotic consumption and expenditure



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